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THESIS

THE EFFECTS OF ECONOMIC, MILITARY, POLITICAL, AND SOCIAL FACTORS ON THE SUCCESSFUL IMPLEMENTATION OF AN ALL-VOLUNTEER ARMED FORCE

by

Volker Gelhausen

March 1998

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-REPORT DOCUMENTATION PAGE	*Form Approved.* *OMB No. 0704-0188*

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1. AGENCY USE ONLY ***(Leave blank)***	**2. REPORT DATE** March 1998	**3. REPORT TYPE AND DATES COVERED** Master's Thesis

4. TITLE AND SUBTITLE THE EFFECTS OF ECONOMIC, MILITARY, POLITICAL, AND SOCIAL FACTORS ON THE SUCCESSFUL IMPLEMENTATION OF AN ALL-VOLUNTEER ARMED FORCE	**5. FUNDING NUMBERS**
6. AUTHOR(S) Gelhausen, Volker	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000	**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)	**10. SPONSORING / MONITORING AGENCY REPORT NUMBER**

11. SUPPLEMENTARY NOTES

The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.	**12b. DISTRIBUTION CODE**

13. ABSTRACT ***(maximum 200 words)***

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14. SUBJECT TERMS Military, Economic, All-Volunteer Force	**5. NUMBER OF PAGES** 145
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	**18. SECURITY CLASSIFICATION OF THIS PAGE** Unclassified	**19. SECURITY CLASSIFICATION OF ABSTRACT** Unclassified	**20. LIMITATION OF ABSTRACT** UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

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THE EFFECTS OF ECONOMIC, MILITARY, POLITICAL, AND SOCIAL FACTORS ON THE SUCCESSFUL IMPLEMENTATION OF AN ALL-VOLUNTEER ARMED FORCE

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requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
March 1998

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ABSTRACT

The end of the Cold War and a decline in public and political acceptance for military power has raised the questions in a number of nations over the continuing need for compulsory military service. This thesis, therefore, develops a conceptual model that shows the estimated effects of social, economic, political, and military variables on the successful implementation of an all-voluntary armed force. The research is based mainly on the experience of all-volunteer recruitment in the United States and Great Britain and recent trends elsewhere, especially in Western Europe. The main focus in this study is on economic considerations and the question about the fit between different key components in the military organization, the so-called “Military Design Factors.” The model illustrates the open-system character of the military organization and highlights the close interrelationship between social, military, economic, and political elements in its environment. This thesis provides a basis for the design of a quantitative model that could be used to assess whether a specific country with compulsory military service possesses the conditions for successful conversion to an all-volunteer system.

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I. INTRODUCTION

A. BACKGROUND

Since the end of the Cold War, the political environment, especially in Western Europe, has changed significantly. As a result, an increasing proportion of society in many countries believe that it is no longer necessary to maintain a relatively large force. Budget cuts and a decline in public and political acceptance for military power exert enormous pressure on government and defense planners to reduce their military force size and redefine national security policies. The need to reevaluate required defense capability, strategy, and structure is intensifying as nations face new challenges in a new world order. The approaches used to solve these problems vary between nations because of differences in their military systems, missions, force requirements, and budget constraints, as well as differences in social and political attitudes toward the armed forces. As Eliot A. Cohen writes: "Nations adopt systems of military service to meet two kinds of demands, those of external necessity--the constraints placed on states by their participation in world politics, their status as sovereign members of the state system, and their location on the globe--and those of ideology." (Cohen, 1985, p. 25)

B. THE PROBLEM OF DOWNSIZING

Force downsizing is an especially important issue for countries with compulsory military service. Besides the issues of maintaining defense capability, military readiness, and force effectiveness, countries that use military conscription additionally face the problem of how to distribute the burdens of service equally among their citizens. Given the condition of a growing or constant population base and declining force strength, it is impossible for all in the relevant age group to share the burden equally. Karl W. Haltiner (1997) found, in an empirical analysis of the structural changes in Western European armed forces, that the "Military Participation Ratio of the Military Age Cohort" (MPRMAC)[1] in Germany, Belgium, Denmark, France, and the Netherlands dropped from 50 percent in the period 1987-1991 to below 25 percent in 1995. According to Haltiner, it is expected that these numbers will further drop until the year 2000. At the same time, Richard V.L. Cooper (1977) finds that defense planners have the following options at their disposal to deal with the equity issue:

1. Decrease the length of time a conscript must serve in the active military force.
2. Devise an offset procedure in which those who are inducted receive some special compensation, while those who do not have to serve pay an extra tax.
3. End the compulsory service in favor of all-volunteer recruitment.
4. Ignore the problem.

Countries have used each of these options in recent years, and there are still nations that ignore the new political and geostrategic circumstances. A growing number of countries have either considered or actually converted from a draft system to all-volunteer recruitment. Nevertheless, the most generally popular option, and the one usually implemented first, has been a reduction in the length of time a conscript must serve (Cooper, 1977). Germany, for example, reduced the length of service for conscription from 18 months to ten months in 1995 and is considering a further reduction to six months. By decreasing the length of involuntary service, the flow of conscripts through the military can be increased so that a large number of individuals can participate in a country's defense. But a reduction of tour length involves cost and can have a seriously detrimental effect on military capability and readiness. Shorter tour length increases the cost of training and leads to a decline in the number of experienced soldiers in the active force. This fact is important because, as Walter Y. Oi (1996) observes, "technology of modern warfare calls for highly qualified and well trained troops." (Fredland et al., eds., 1996) Haltiner (1997) concludes that the "Conscript Ratio"[2] would decrease with an increasing degree of technical complexity of applicants and armed systems because conscripts serving on a short-term basis would no longer meet the requirements regarding permanence in training and readiness for duty.

---

[1] Haltiner (1997) defines the MPRMAC as the percentage of drafted individuals in a particular age group of the total population (such as 18-32 years old or 22-32 years old).

C. MILITARY MANPOWER OPTIONS

Problems of military manpower are as old as the military itself. (Haeckel, 1970) Although no country has a military manpower system that is exactly the same as another's, most military manpower schemes have some significant characteristics in common. Almost all military manpower planners are faced with issues such as: the numbers of soldiers needed, how to recruit them, how to keep them, how to train them, how to control them, and how to make best use of them. Attempted solutions to these problems are innumerable and infinitely diverse. For Haeckel (1970), there is only one fundamental choice that bears on all possible alternatives: should military manpower rest on the soldier's free will or on compulsion? Should soldiers be induced or coerced? Should they be volunteers or conscripts? The difference between an All-Volunteer Force (AVF) and a draft system is an fundamental one, and the decision to base a country's armed forces on one of these two principles or a combination of both entails a host of problems and alternatives reaching far beyond the limited field of military recruitment policy. (Haeckle, 1970)

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[2] Haltiner (1997) defines CR as the percentage of conscripts in the active armed forces.

The decision about which of the options defense planners should choose depends on several variables, particularly the interests of society. The people of a nation have to decide how much they are willing to "pay" in terms of personal freedom and budget for their national security. Military and political leaders must, therefore, be sensitive to current trends and be willing to perform needed changes very responsibly.

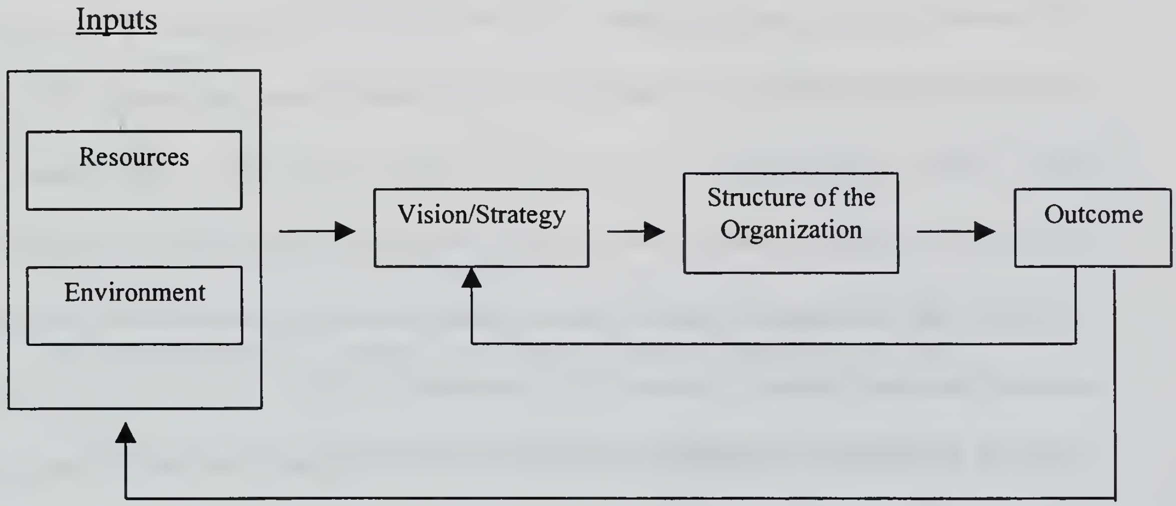
D. THE ORGANIZATION AND ITS ENVIRONMENT

The ability to create a vision and the willingness to implement changes are two of the characteristics of successful leadership. In many senses, the task of a manager is to influence behavior in a desired direction, usually toward the accomplishment of a specific task or performance goal. To be effective managers need to understand the patterns of behavior that are observed, to predict in what direction behavior will move, and to use this knowledge to control behavior over the course of time. Organizational behavior, on the other side, does not occur in a vacuum, but is significantly affected by its environment. According to David A. Nadler and Michael Tushman (1991), organizations have the characteristics of an open social system within a larger environment.[3] That environment provides opportunities for action, it provides constraints on activities, and it makes demands upon organization's capacity.

---

[3] See David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior," in Kolb, Rubin, and Osland, *The Organizational Behavior Reader*.

Any organization faces the environment with a given set of resources of various kinds: people, technology, education, and so on. The process of determine how those resources can best be used to achieve the desired output and to function within the environment is mainly influenced by the vision and strategy of decision–makers. Beside resource allocation, managers must specifically focus on how the organization must adapt its structure and production process to use these inputs most efficiently by maximizing its level of output.



Source: David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior" in David A. Kolb, Irwin M. Rubin and Joyce S. Osland. The Organizational Behavior Reader. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1991)

Figure 1.1. The Open-System Character of an Organization

E. A CONCEPTUAL MODEL OF THE MILITARY ORGANIZATION

Can civilian management expertise and strategies be used to make the military organization more competitive and efficient? Edward S. Quade (1989) and Charles L. Schultze (1970) see significant differences between private and government organizations in measuring performance and, therefore, the ability to predict future outcomes. As Schultze states, government programs rarely have an automatic regulator that tells us when an activity has ceased to be productive or can be made more efficient or should be displaced by another activity. For a private organization, under competitive market conditions, this regulator is given by the ability to satisfy the demands of its customers cost effectively and is expressed in profit.[4] Quade concludes that the government should seek substitutes in the form of an appropriate analysis. He describes policy analysis as "a form of applied research carried out to acquire a deeper understanding of sociotechnical issues...searches for feasible courses of action, generate information and marshaling evidence of the benefits and other consequences...that would follow their implementations, in order to help policy-maker choose the most advantageous action." (Quade, 1989, p. 48) Quade sees that the "heart of any decision analysis is the existence or creation of a process that can predict or at least indicate the consequences that follow the choice of an alternative" (Quade, 1989, p. 48). A model can fulfill this function. He defines a "model" as a set of generalizations or assumptions about the world; "a simplified image of reality that may be used to investigate the outcome of an action without actually taking the action" (Quade, 1989, p. 48). Therefore, if decision-makers consider a course of action for implementation, a scheme or process is needed to tell what impacts would be generated and to what extent the objective would be attained. In the policy question, for example, whether a nation should implement an AVF or not, military policy makers should create a conceptual model that accounts for important factors influencing the policy outcome (e.g., the success of the military system). Policy makers should also consider possible spillover effects and impacts on stakeholders. Because the military organization also shows the character of an open system, it can be basically conceptualized as shown in Figure 1.2.

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[4] See Charles L. Schultz, "Statement in Planning, Programming, Budgeting," as cited in Quade, *Analysis for Public Decisions.*

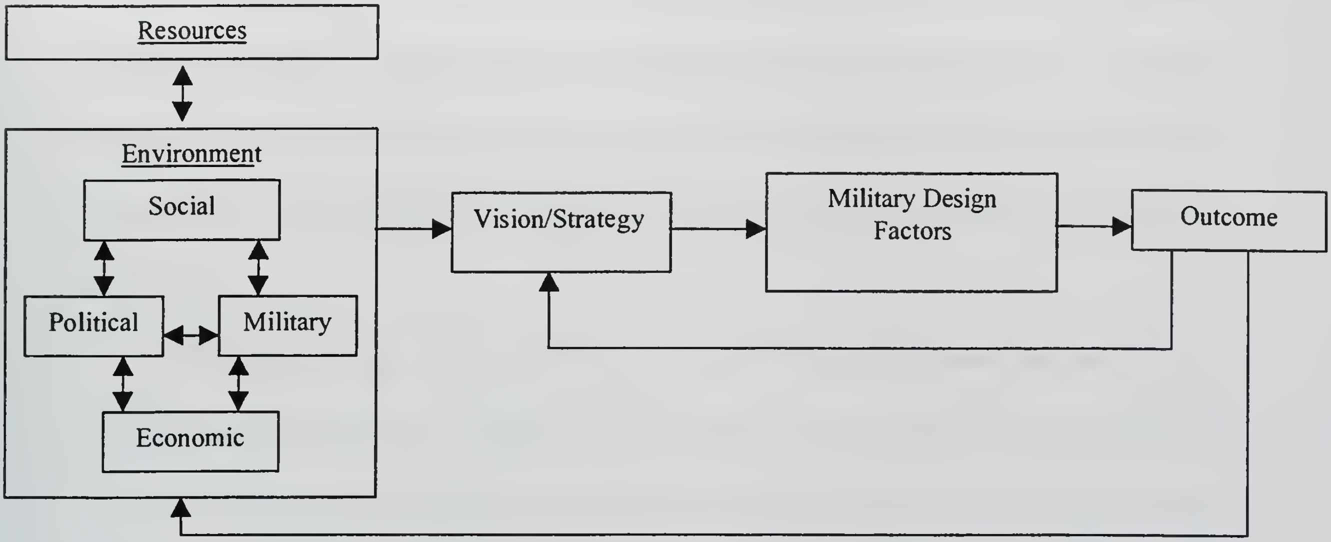

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Figure 1.2. The Conceptual Model of the Military Organization

The purpose of this thesis is to develop a conceptual model that shows the effects of particularly economic variables and military design factors, on the successful implementation of an all-volunteer force (AVF). Furthermore, by introducing the "Institutional/ Occupational model," it demonstrates different approaches in conceptualizing the military organization. A key issue in evaluating the whether a nation should change its military system from a draft to an AVF is the question of how one defines and measures the success of a military force under peacetime conditions. The research is based mainly on the experience of all-volunteer recruitment in the United States and Great Britain and recent trends elsewhere, especially in Western Europe.

II. THE CONCEPT OF LABOR DEMAND AND SUPPLY AND ITS RELATIONSHIP WITH MILITARY MANPOWER ISSUES

A. INTRODUCTION

Effective management of military personnel and, thus, the success of all-volunteer recruitment require an understanding of a number of factors. These include the response of personnel to pay and other policy tools, the optimal amount of training, the optimal experience and quality mixes, and a proper mix of pay and other incentives. (Warner and Asch, 1995)

This idea was the basic assumption of the President's Commission on an All-Volunteer Armed Force, often referred to as the "Gates Commission." The Commission viewed labor demand and supply under competitive market conditions as the basis for the successful implementation of an AVF in the United States. Its 1970 recommendation to end compulsory service was influenced mainly by a "market place philosophy." The Commission concluded that military manpower requirements in an AVF could be fulfilled only if the military could compete with private organizations for scarce labor resources. Further, the Commission argued that recruiting and retaining an armed force should rely primarily on monetary inducements guided by labor force realities. Needless to say, this conclusion led to considerable controversy.

Cooper (1977) discusses the three major criticisms of the Gates Commission's final report. The first, and probably most frequently voiced criticism, was that the Commission focused almost solely on pay and economics, to the exclusion of other, equally important, considerations. The second major criticism was that the Commission tended to focus on the short-run problem of achieving an AVF at the expense of the longer-run problems of sustaining and managing volunteer military manpower.[5]

Finally, a third criticism was that the Commission would not consider the interests of all stakeholders (i.e., attention to the issues concerning social representation) and the spillover effects of this policy. Some scholars, such as Charles C. Moskos (1988), thus saw the Gates Commission study as a "laissez-faire economic approach" and not as a comprehensive policy analysis. He emphasizes that the issues of social acceptance and integration are important factors that affect attitudes toward the military and the shape of the military labor supply curve.

This chapter introduces a simple model of labor demand and supply that offers some insights into labor market behaviors. These insights are very useful in understanding the relationship between social, economic, military, and political factors in the successful implementation of an AVF.

B. THE DEMAND FOR MILITARY LABOR

1. The Concept of the Demand for Labor

"The study of the labor market begins and ends with an analysis of the demand for and supply of labor." (Ehrenberg and Smith, 1994, p. 35) On the demand side of the labor market are employers, whose decisions about the hiring of labor are influenced by conditions in different markets.[6] Ehrenberg and Smith (1994) conclude that an employer's "demand of labor" is a function of:

---

[5] As Cooper observes: "Although the Commission did provide some guidance on these long-run issues, the view that it tended to focus more on the problems of how to achieve a volunteer force and *whether* it could be sustained, rather than how best to sustain it, is probably correct. Indeed, issues such as the mix of manpower, training policies, career management, and compensation are all important to the future of the volunteer force, yet were given only passing by the Commission" (Cooper, 1977, p. 108).

1. The characteristics of demand in the product market (i.e., elasticity[7]);
2. The ease with which labor can be substituted for capital and other factors of production; and
3. The price of labor itself, as well as the price of other factors of production.

For the purpose of making or evaluating manpower policies, the demand for labor has two important characteristics. The first is that it can be shown theoretically--and demonstrated empirically--that the labor demand curves slope downward. (Pindyck, Rubinfeld, 1994) Cooper (1977) supports this theory. He states that the demand for recruits is a downward-sloping function of the cost of first-term labor. As first-termers become more expensive relative to other inputs to the defense mission, the military will demand fewer first-termers and more of these other inputs. The second characteristic of the demand for labor is that the quantity of labor demanded has varying degrees of responsiveness to wage changes. This means that, while the quantity of labor demanded always declines as the wage increases, this decline will be larger in some cases than in others. Ehrenberg and Smith (1994) see the degree of responsiveness as crucial to most policy issues.

---

[6] As Ehrenberg and Smith write: "The labor market is one of the three markets in which a firm must successfully operate if they are to survive; the two other ones are the capital market and the product market. The labor and capital markets are the major ones in which firms' inputs are purchased, and the product market is the one in which output is sold." (Ehrenberg and Smith, 1994, p. 35).

[7] Elasticity is a measure of the sensitivity of one variable to another. Specifically, it is a number that provides the percentage change that will occur in one variable in response to a one-percent change in another variable. For example, the price elasticity of demand measures the sensitivity of quantity demanded to price changes. The demand is *price elastic* if a small change has a large effect on the quantity demanded. The demand is *price inelastic* if the quantity demanded is less effected by changes in the price level.

2. Military Manpower Demand

Political as well as geostrategic circumstances significantly affect the demand for national security and society's support for the military. Countries such as Germany, France, and the Netherlands, historically surrounded by powerful "Great Powers," have almost always required and depended on conscription to raise large and standing armies to defend themselves. The population supported the military and was willing to share the burden of national defense in terms of both monetary values and active participation. On the other hand, insular states such as Britain and Australia have only rarely faced a threat of invasion and, hence, have rarely needed to raise large armies to protect their frontiers in peacetime.

Since the fall of the "Wall" in 1990, this situation has changed. Because people are less sensitive to security, they no longer see the need to maintain a relatively large military; and they are less willing to share the burden of defense in the same way as before. The demand for national security is now both lower and possibly more "elastic," which implies that society is more concerned about the "costs" of defense rather than the "benefits" of military defense capability. This situation exerts a downward pressure on the military budget. In manpower issues, defense planners are also more sensitive to the cost of manpower in the labor market and are motivated to use technology and/or civilian employees instead of the relatively more-expensive military personnel. Figure 2.1 shows both, the shift from D1 to D2 and also the influence of the substitution as wages rise from W1 to W2. results in a decreased demand for military personnel and, therefore, induces a shift of the demand curve from (D1) to (D2). This implies that the proportion of the eligible manpower pool that is required to fill vacancies drops from R1 to R2. This shift also implies that military defense planners are less willing to recruit military personnel at every given wage level.

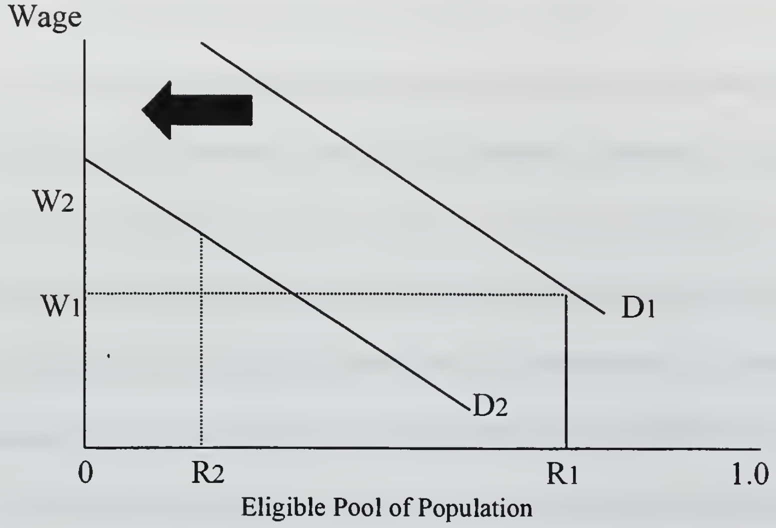

Figure 2.1. Shift of the Demand Curve for Military Personnel

Karl W. Haltiner (1997) supports this idea. He sees, after the demise of the Warsaw Pact and the Soviet Union, the end of what he calls the "Mass Army" in Western Europe. He bases his "Theory of the Decline of the Mass Army" on the assumption that enormous economic productivity and the high living standards in industrialized modern societies are considerably affected by an ever-increasing functional division of labor and professional specialization. The armed forces of modern societies will, therefore, become leaner in personnel in the future. According to Haltiner, "they rely on high technology and are highly differentiated and complex as far as their organization and function are concerned." (Haltiner, 1997, p. 2)

The demand for military personnel can, thus, be defined as a function of the force structure (i.e., technology versus manpower), quality and productivity of soldiers, force size (number of active units), and the attrition rate. The more high-tech weapons an armed force has or the more productive soldiers become, the fewer personnel will be demanded.[8] Cooper (1977) also supports the negative relationship between productivity (i.e., experience) and manpower demand.[9]

The decision to implement an AVF is often closely related to the question of the cost of military manpower. The price one has to pay for a unit of labor depends on several factors, but is mainly determined by the quality and quantity the organization demands.

The Gates Commission also recognized this issue and saw the size and quality of the future military as the most critical variables in planning for an AVF. According to the Commission, "small forces or those of low quality could be raised on a voluntary basis, even if military compensation were reduced. Very large forces or those of high quality would require substantial increase in military pay." (Gates Commission Report, 1970, p. 34)

This finding by the Gates Commission leads to the conclusion that even nations with low military budgets would be able to create an AVF at least economically successfully. But, these governments have to account for losses in effectiveness and military capability. This may result in a decline of acceptance and credibility for the military. The vision and strategy of defense planners are, therefore, essential before a nation can consider a change from draft to volunteer manpower recruitment. They must make the trade-off between desired quality and capability of the military in the future and the price they are willing to pay for it.

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[8] See Department of Social Sciences, Office of Economic and Manpower Analysis, United States Military Academy, 1997, *The Labor Market for Soldiers* (Washington, D.C.: Office of the Deputy Chief of Staff for Personnel).

[9] Cooper observed for the U.S. military that "career personnel can be substituted for first termers at a rate of about four careerists for every ten first-termers...even taking into account the higher rates of pay, the higher retirement cost, and the larger reenlistment bonuses that would be required to sustain a larger career force, we find that the total enlisted force of about 1.6 million, split evenly between first-termers and careerist, would provide the same overall force capability as the current 1.8 million member force with a 60/40 experience mix." (Cooper , 1977, p. 311)

3. Short-Run Versus Long-Run Considerations

The "shape" of the demand curve is important for long-term considerations and is partially determined by the vision and strategy of defense planners. The development and implementation of technology is time intensive, which constrains the organization's ability to substitute technology for labor in the short-run. Cooper (1977) notes that, especially in the short-run, recruiting objectives may be relatively inflexible since, for a given force structure, it may take considerable time to substantially alter the mix of inputs for the defense mission. Cooper emphasizes the need to make the distinction between "demand" and "requirements" for military manpower. He relates the demand to the long-run relationship between the numbers of people desired and their costs. Manpower requirements refer to the number of people desired at any point in time.

C. THE SUPPLY FOR MILITARY LABOR

1. The Concept of the Supply of Labor

The previous section looks at a simple model of behavior on the demand side of the labor market. This section introduces the supply side of the market. As mentioned above, the demand curve of labor is influenced mainly by an organization itself. Vision, organizational structure, strategy, and the composition of resources in the production process determine the desired quantity and quality of the labor force and the "price" an organization is willing to pay for a marginal unit of labor.

On the supply side of the labor market are the workers or potential workers, whose decision about where and whether to work must take into account their other options for how to spend time. The labor supply curve shows the relationship between wage and quantity of labor supplied, holding everything else constant. It is essential to note that the term "labor supply" involves an individual's decision to join an organization, as well as the decision to remain in the job.

Economists assume that, with an increase in wage rate, individuals are likely to supply more labor.[10] The supply curve of a particular market results from an individual's willingness to provide labor for a specific occupation or organization and is a schedule of reservation wages that indicates the labor forthcoming at each wage level. Reservation rate can be defined as the lowest wage rate for which a person would work. The amount by which one's wage exceeds one's reservation rate in a particular job is the amount of his or her economic rent. (Ehrenberg and Smith, 1994) The existence of rents is the result of differences in worker preferences, as discussed below.

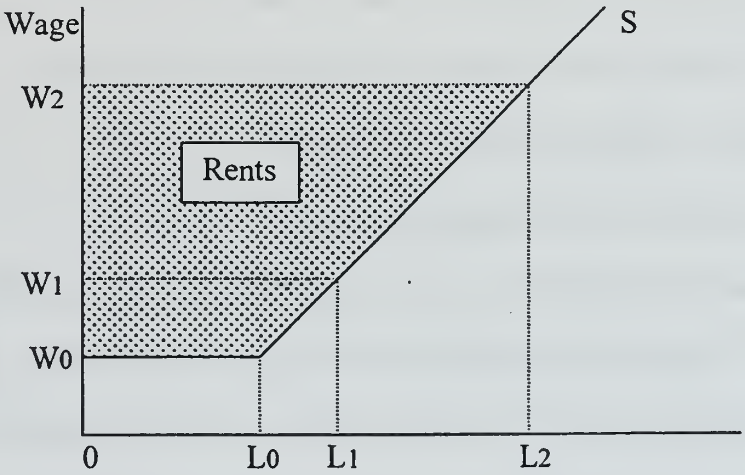

Figure 2.2. The Concept of Economic Rents

In addition to the size of the eligible cohort, the shape and slope of the labor supply curve is influenced mainly by the attitude of workers toward a specific occupation or organization. As a result, one would expect the supply of labor, with respect to pay, to be best described as a non-linear function. A linear relationship between wage rate and labor quantity, holding everything else constant, would imply that an organization could attract unlimited labor just by increasing its wage rate. In reality, regardless of the wage offered, some individuals will decide not to join an organization for several reasons--a point that is important in later considerations.

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[10] This positive relationship comes from the substitution effect: as the wage rate increases, the opportunity cost of leisure increases, so individuals tend to substitute labor for leisure.

What does this theory imply for decision-makers? The slope and the shape of the labor supply curve determines the "price" an organization has to pay to attract the desired quality and quantity of employees. Figure 2.3 shows that the wage bill for an organization is the wage rate paid (i.e., W1) times the number of employees in a specific job (i.e., L1).

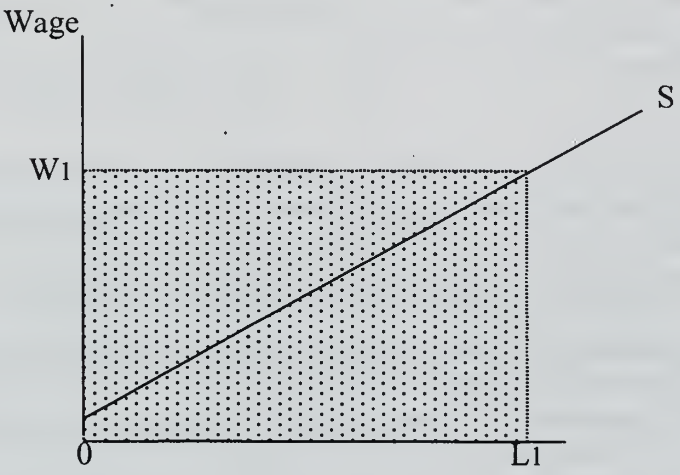

Figure 2.3. The Costs of Labor

Therefore, one can conclude that the steeper the supply curve in a wage-quantity labor market framework, holding everything else constant, the higher the costs for an enterprise to fill its vacancies. The flatter the supply curve, holding everything else constant, the lower the costs of labor.

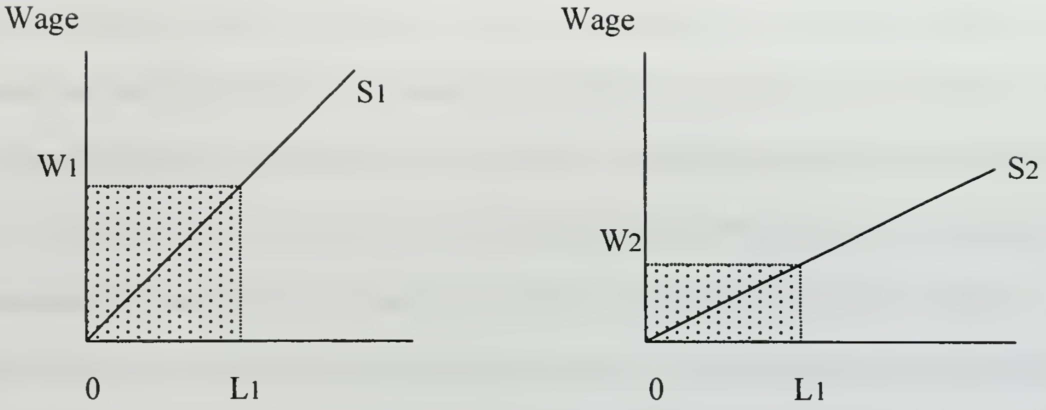

Figure 2.4. Cost of Manpower Under Different Supply Curves

As Figure 2.4 shows, the organization in the left diagram faces a much steeper labor supply curve than the organization in the right diagram. To be able to attract the same number of employees, it has to pay higher wages, which results in higher labor costs.

To be successful, decision-makers should have an idea about the shape and slope of the labor supply curve that an organization is facing. Furthermore, one should recognize that the shape and slope of labor supply is affected by different factors. All of these variables are highly correlated with an individual's willingness to provide labor for a specific occupation or organization. The key question managers face is how to influence the effects of these variables in favor of the organization. In this context, how can the military organization change a steep labor supply curve to one that is more flat, to keep labor costs low?

The "price" for labor is also influenced by variables that cannot be influenced by an organization itself. With the passage of time, for example, changes in the population and labor force participation may affect the supply for labor as well. Similarly, education, training, and skill-enhancing experience can improve the quality of the labor force and thereby expand the supply of human resources. (Gwartney and Stroup, 1995) Changes in any of these determinants of labor quantity cause a shift of the entire labor supply curve in the long run.

2. The Concept of Occupational Choice

The concept of "occupational choice" is based on the assumption that workers in the labor market would rather maximize their level of utility than they would their income. (Ehrenberg and Smith, 1994) This concept implies that an employee's decision about whether and where to work depends on both pecuniary and non-pecuniary aspects of a job. As Warner and Goldberg write: "In the labor market, non-pecuniary elements are thought to play a large role in the determination of the equilibrium market wage rates and the self-selection of individuals with dispersed tastes into various occupations." (Warner and Goldberg, 1984, p. 1)

An organization, for example that offers employment in a dirty, noisy, and dangerous environment, or has a bad reputation concerning treatment of its employees, finds it hard to attract job applicants. Such an enterprise must pay a higher wage rate to bring in the desired quality and quantity of labor. One can say that this organization faces a steep or inelastic labor supply curve. It has to increase the wage rate significantly to be able to increase the pool of job applicants. "The 'extra' wage an organization must pay (i.e., in relation to the market wage rate) to attract workers is called compensation wage differential. The higher wage is paid to compensate workers for the undesirable working conditions." (Ehrenberg, Smith, 1994, p. 243)

In contrast, if an organization offers a clean and modern work environment and has a good reputation in the community, individuals are more likely to want to work there. This organization faces a more elastic labor supply curve. It can easily fill its vacancies with even a small increase in wages and select the best matching employees from a pool of applicants.

In summary, one can conclude that the wage rate an organization must pay to attract or to keep employees is influenced largely by the workers' attitude toward this enterprise, holding everything else constant. Controlling for other social and economic factors (e.g., unemployment rate, population base, wage offers of competitors), working conditions, as well as the question of fairness and organizational justice,[11] determines substantially an individual's decision to join or to stay in an organization.

Ehrenberg and Smith conclude that "compensation wage differentials become the prices at which good working conditions can be purchased by, or bad ones sold to, workers. Contrary to what is commonly asserted, a monetary value can often be attached to events or conditions whose effects are primarily psychological in nature" (Ehrenberg and Smith, 1994, p. 244). Therefore, compensating wage differentials provide the key to the valuation of these nonpecuniary aspects of employment.

3. The Concept of Military Labor Supply

Nations considering a change from the draft to all-volunteer recruitment must determine a strategy that will ensure the successful implementation and management of an AVF. In contrast to countries with compulsory service, nations with an AVF must be concerned with the supply curve in the labor market and must compete with private organizations for quality employees. Since the implementation of the AVF in the U.S., the research community within the military has devoted much effort toward improving personnel management in the areas of manpower accession and retention. In contrast to a draft system, "the fundamental concept of an AVF is the exclusive reliance on volunteers to meet the demand for enlisted personnel. The reliance only on volunteers has resulted in major changes in the recruitment and management of military personnel."[12] Since military capability is a function of force strength, an AVF must be judged in terms of its ability to sustain desired force strength objectives.

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[11] Paul M. Muchinsky (1997) relates "organizational justice" to the fair treatment of people in organizations.

According to Cooper (1977), the keys to deciding whether or not to implement an AVF are in the military's ability to attract enough new recruits to sustain force strength objectives without the pressure of the draft, and in the quality of these new recruits. Success or failure of an AVF is based on two pillars: first, the ability to attract young men and women to join the service and, second, the ability to motivate experienced and qualified soldiers to stay in their jobs.

a. The Framework of Occupational Choice and its Implication for the Military

The decision to enlist or reenlist is conveniently described using standard occupational choice theory.[13] Under competitive or free labor market conditions, individuals who decide whether to join or to stay in the military must compare the pay and non-pecuniary benefits available in the whole market. As mentioned before, is the individual's supply price simply his or her alternative civilian wage plus the monetized value of his or her perception of the non-pecuniary aspects of military employment.[14] This framework is, in accordance with Cooper (1977) and Warner and Asch (1995), based on three assumptions. First, an individual's military reservation wage is a function of his or her civilian earning opportunities so that, holding everything else constant, individuals with higher civilian wage potentials would be expected to have, on average, a higher reservation wage. This implies that the military has to offer a higher wage rate to attract more-highly-qualified personnel. Second, the relationship between military reservation wage and civilian earnings is not exact, which is a reflection of differences in taste.[15] Finally,

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[12] See Gary R. Nelson, "The Supply and Quality of First-Term Enlistees under the AVF," in Bowman et al., eds., *The AVF after a Decade.*

[13] See Sherwin Rosen, 1986, "The Handbook of Labor Economics," in Hartley and Sandler, *Handbook of Defense Economics.*

[14] The "economic cost of military labor" can therefore be seen as the opportunity cost for those individuals employed in the military.

> those on the upper reaches of the supply curve are on average, likely to judge the non-pecuniary aspects of military service in a less favorable light than those on the lower portion on the supply curve. In particular, those on the upper portion of the supply curve are likely to require a positive premium to be induced to serve voluntarily. Conversely, some of those on the lower end of the supply curve may actually be willing to take less than their civilian wage offer because of their favorable evaluation of these non-pecuniary aspects.[16] (Cooper, 1977, p. 70)

The latter leads to the conclusion that there are other important factors beside the "pay-variable" that might have a significant influence on an individual's decision to join or to stay in the military.

Thus, Cooper sees the importance of categorizing the factors that are expected to influence an individual's decision to join or to stay in the military into several major groups: "(1) the tangible aspects of military employment, (2) the dissemination of information to potential recruits, (3) the employment and earnings conditions in the civilian economy, and (4) the population base from which the military must draw its recruits, and (5) individuals' 'tastes' for military service." (Cooper, 1977, p. 159)

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[15] Cooper assumes that some individuals are more favorably disposed toward military service than others. He concludes that the differences between an individual's civilian wage opportunity and his or her supply price thus represents the monetized value of his or her relative preference for military service.

[16] Cooper mentions in this context an unpublished survey by Robert Gay of the RAND Corporation. Gay found that about 25 percent of all individuals joining the military reported that they had earned more in their most recent job than they actually received upon joining the service.

b. Tangible Aspects

"Tangible aspects" of military employment in this context include (beside the military pay variable) the length of the initial enlistment tour, the opportunity to obtain training (i.e., general training), and the enlistment options used to lure potential recruits into the military. Warner and Asch (1995) emphasize the role of human capital development in the initial enlistment decision. The authors state that individuals may join because they want to acquire skills and general training that will be useful later.

Enlistment options can and do include the freedom to specify one or more items (e.g., occupational assignment, type of training, assignment location, etc.) as a condition for entering the military. And, as Cooper observes, "as the military offers more options to potential recruits, more individuals will enlist, simply because more will find a match between their own preferences and what the military has to offer." (Cooper 1977, pp. 159-160)

c. Job Matching and Job Separation

According to Ehrenberg and Smith (1994), one of the major functions of the labor market is to provide the signals and mechanism by which workers seeking to maximize their utility can be matched to employers trying to maximize profits as one of the major functions of the labor market. "Matching is a formidable task because workers have varying skills and preferences and because employers offer jobs that differ in skill content and working environment." (Ehrenberg and Smith, 1994, p. 242) They conclude that job match and job satisfaction are highly correlated. Arnold and Feldman (1982), Kalleberg (1977), and Freeman (1978) have interpreted job satisfaction as an endogenous variable that directly or indirectly influences job separation. (Buddin, 1977) Therefore, one can conclude that job match and job satisfaction have a significant effect on a soldier's motivation as well as on job performance, and, hence, on his or her decision to remain in the service.

Several studies have tried to explain retention by the match between a worker and his or her firm. These studies base their theory on the assumption that individuals and firms enter employment contracts with imperfect information. Johnson (1978) and Wilde (1979), for example, looked at an individual's choice to remain with a firm through the use of a learning or experience model. This model proposes that each job represents a unique set of characteristics, and the only way an individual can determine the true value of a job is through experience. This theory would seem particularly appropriate for the military, where the effects of family separation, deployment, and life at sea or in the field can only be realized over time.

A second model related to job matching and job separation used by Javonovic (1977), Martenson (1978), and Wilde (1979) is known as the "search model." This model says that, when a worker accepts employment, he or she may be uncertain about alternative job offers. As new information becomes available about alternative employment opportunities, an individual will reevaluate his or her employment contract. Job separation results if alternative employment offers greater total returns than does he current job match.

In contrast, Buddin (1984) observes that various indicators of military job-person match have no significant impact on behavior, especially on early attrition (i.e., during the first six months). According to Buddin, factors such as qualifying for the desired kind of job, having pre-enlistment knowledge of the job qualifications, or getting the preferred job do not alter the likelihood of early attrition after controlling for other variables. The "differences between the determinants of early attrition and the civilian separation of young workers may reflect both institutional differences between the two sectors and the differences in the individuals who choose employment in each." (Buddin, 1984, p. 2) [17]

d. Recruiting

The U.S. experience with an AVF shows that no single area of manpower systems is more directly or more immediately affected by the removal of the draft than recruiting. This should be fairly obvious, since the removal of compulsory service increases the numerical requirements for volunteers, given a stable force size. The recruiter played a relatively passive role during the draft, acting primarily to regulate the flow of enlisted accessions into the U.S. Armed Forces. This stands in contrast to the activist role that the recruiter must take in a volunteer military in searching for new enlistees. There is little need to explain the importance of recruitment. An organization that fails to attract a sufficient number of new members faces extinction. Further, the characteristics of new members allow or prevent an organization from reaching its goals. General Gordon R. Sullivan, Chief of Staff of the U.S. Army (1993), therefore, highlights the importance of recruiting to ensure the success of an AVF in the U.S.[18]

Eitelberg (1993) states that one important lesson learned in the U.S. experience with an AVF relates to the importance of adequate recruiting and advertising resources. Dorn (1993) claims that recruiting resources are critical to the services' efforts in reaching their annual accession rates. The Gates Commission (1970) also recognized the importance of recruiting programs. The Commission's final report suggested that "the armed services devote an increased proportion of their resources to recruiting." (The Gates Commission Report, 1970, p. 83) While the commission did not call for a specific increase in the recruiting effort, more recent studies have shown a strong positive relationship between enlistment supply and production recruiters.[19]

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[17] One has to recognize, though, that military employment has some characteristics not common in the civilian sector. The most obvious is that voluntary separation is not allowed. The enlistment contract is a commitment for service until the end of an obligated term. Thus, all separations before the end of the term are service-initiated. (Buddin, 1984)

[18] See Gordon R. Sullivan, "The Volunteer Force and the Burden of Peace," in Fredland et al., eds., *Professionals on the Frontline.*

In accordance with Cooper (1977) an analysis of the recruiting function must begin with the basic objective of recruiting activities. Recruiting activities, in general, include recruiters in the field, mailings, advertising, and logistical support for the recruiting establishment. "Recruiting activity may serve merely to inform potential recruits of the employment opportunities in the military or may also serve to persuade some to join." (Cooper, 1977, p. 160) But the objective of a recruiting system is not only to attract potential recruits, it must also attract the desired number of *qualified* personnel. According to Cooper (1977), the responsibilities of a recruiting system are to (1) attract individuals to seek employment in the military, (2) classify enlistment applicants according to aptitude for the military service, (3) select from among these applicants, and (4) determine where the enlistees ought to be assigned in the military. These considerations are essential for successful manpower management for several reasons. First, larger recruiting efforts will be expected to yield more enlistments, an assumption generally accepted by economists, sociologists and, military leaders. Second, clearly defined recruiting objectives and goals are fundamental to target the "right" group of people. Third, the latter increases the probability of a job-person match, job-match, which leads to better motivation, and productivity. Finally, job-person match reduces attrition and, therefore, the turnover costs.

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[19] See Gary R. Nelson, "The Supply and Quality of First-Term Enlistees Under the All-Volunteer Force," in Bowman et al., *The All-Volunteer Force After a Decade.*

Another area of recruitment addresses what is called the realistic job preview (RJP). Muchinsky (1997) sees RJPs as an attempt to portray jobs realistically, the opposite of slick advertising that overemphasizes the job's good points and ignores its bad points. "The rationale is that one reason people quit their jobs is due to disillusionment. They were initially led to believe the jobs were going to be highly attractive, but over time reality set in, and the jobs were not so great after all." (Muchinsky, 1997, pp. 150-151)

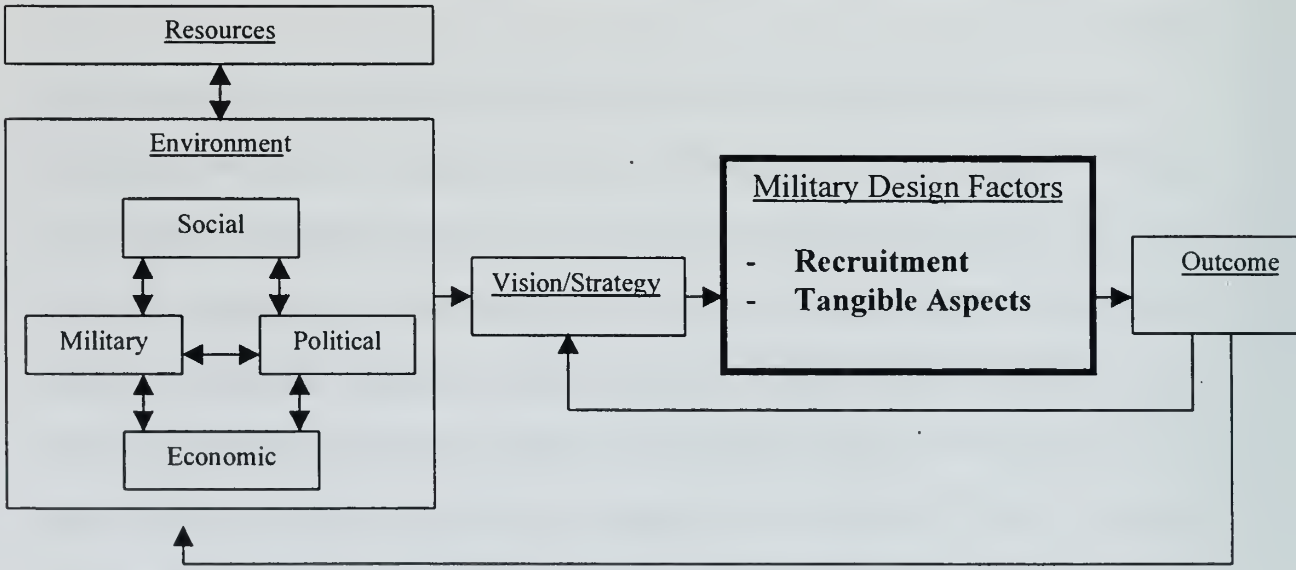
Several studies in the civilian sector, however, indicate that the correlation between RJP and separation is, at best, modest. Research by Zaharia and Burmeister (1981) and Reilly, Brown, Blood, and Malatesta (1981) suggest that RJP activities often exercise no effect on job acceptance rates, employee commitment, or eventual turnover rates.

Nevertheless, one has to recognize that an RJP can significantly affect the credibility of an organization, especially for the military, where commitment and trust are core values. Recruiting methods and fairness may influence the willingness, especially of high-quality personnel, to join or to stay in an organization, which, in turn, affects the shape of the supply curve and thus the price of labor. General Maxwell R. Thurman (1996) sees the need to tell potential recruits what is expected of a soldier, "that basic training is tough, but that they can make it if they work at it." According to Thurman, "they will [then] be proud when they have done it." (Fredland et al., eds., 1996, p. 62)

In general, the tangible attributes of military employment and recruiting efforts can be manipulated through policy directives and are both, as Figure 2.5 shows, parts of the military design factor component. There are, however, factors, such as employment and earning conditions, as well as the population base that are truly exogenous to military policy control. This situation means that military defense planners can only recognize and react to trends rather than take the initiative.

e. Population Base

The variable, "population base," refers to the pool of people in a society from which the military draws its new recruits. The factor includes two aspects that are essential for the success of an AVF. The first aspect is the quantity issue. Eitelberg (1996) states that "perhaps the greatest fear of defense officials centered on a factor beyond their control: the projected 'demographic depression,' or declining population of military age youth." (Fredland et al., eds., 1996, p. 68) Nelson (1983), however, does not see the decline of the eligible pool (i.e., size of youth cohort) as nearly the threat for an AVF as commonly thought.



Source:Adapted from David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior" in David A. Kolb, Irwin M. Rubin and Joyce S. Osland. *The Organizational Behavior Reader*. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1991)

Figure 2.5. Recruitment and Tangible Aspects as Parts of Military Design Factors

The second aspect of the "population base" factor is the quality issue. Quality in this context refers to the average educational background and technical knowledge of a population. Some analysts have described the population base as the "Qualified-Military-Available" or QMA pool of potential recruits. This takes into account not only the new number of young people, but also the military's basic qualifications for enlistment eligibility. It also eliminates persons (the "unavailable") who are either institutionalized or firmly attracted to attend college over military enlistment. In recent years, the QMA estimate of the military's population base has been expanded to include an "I" or interest factor. The "QMA&I" estimate incorporates data from surveys on the propensity, or professed levels of interest, among military-age youth in joining the military.

In his framework to explain a soldier's proficiency, Steven Leveen (1983) assumes that there are two qualities of a fighting force that combine to describe the ability of that force to derive the full capabilities of its weapon systems. He calls the first of these terms motivation, which relates to "the qualities of a force that make its personnel appear enthusiastic rather than lackadaisical or dispirited." (Leveen, 1983, p. 3-3) The second term is called technological capacity, and refers to the capacity to understand and operate the sophisticated equipment associated with modern warfare. Leveen emphasizes the importance of what he calls the "Tractor Factor" and the "Atari Factor." These terms capture, in his framework, the familiarity individuals acquire from routine exposure to technology in their societies prior to joining the military. His model, to assess personnel potential, is based on the assumption that the kind of experience and familiarity gained through working on and operating mechanical equipment, such as tractors, forms a part of the technological exposure helpful to military performance. Leveen writes: "one instructor of aircraft mechanics from around the world reports that there is a noticeable difference in aptitude between students from countries having tractors and students from countries where tractors are uncommon." (Leveen, 1983, p. 2-2) He sees the importance, especially in modern societies, in the exposure to electronic and microelectronic equipment, including the associated keyboards, displays, and special terminology. According to Leveen, "what may be gained from such exposure is not necessarily a technician's ability to repair the equipment, but merely the familiarity of an operator of such equipment.“ (Leveen, 1983, p. 2-2)

Therefore, the successful implementation of an AVF is based on a realistic analysis of the "intellectual capability" of society. The assumption is that the higher the average level of education[20] and technical knowledge in a society, the greater is the pool of eligible individuals and thus the easier and less expensive it is for the military to attract high-quality personnel. The variables "average education" and "technical knowledge" are supposed to have a positive and significant effect on the successful implementation of an AVF.

Defense planners are facing the trade-off between their vision about structure and ability of the force and the substance of human resources available. To obtain the same level of technological sophistication among its recruits, a country with an agricultural background would have to pay a higher price for its volunteers than would more-modern nations. Figure 2.6 shows that the population base is one of the most important resources of the military organization, particularly under all-voluntary recruitment conditions.

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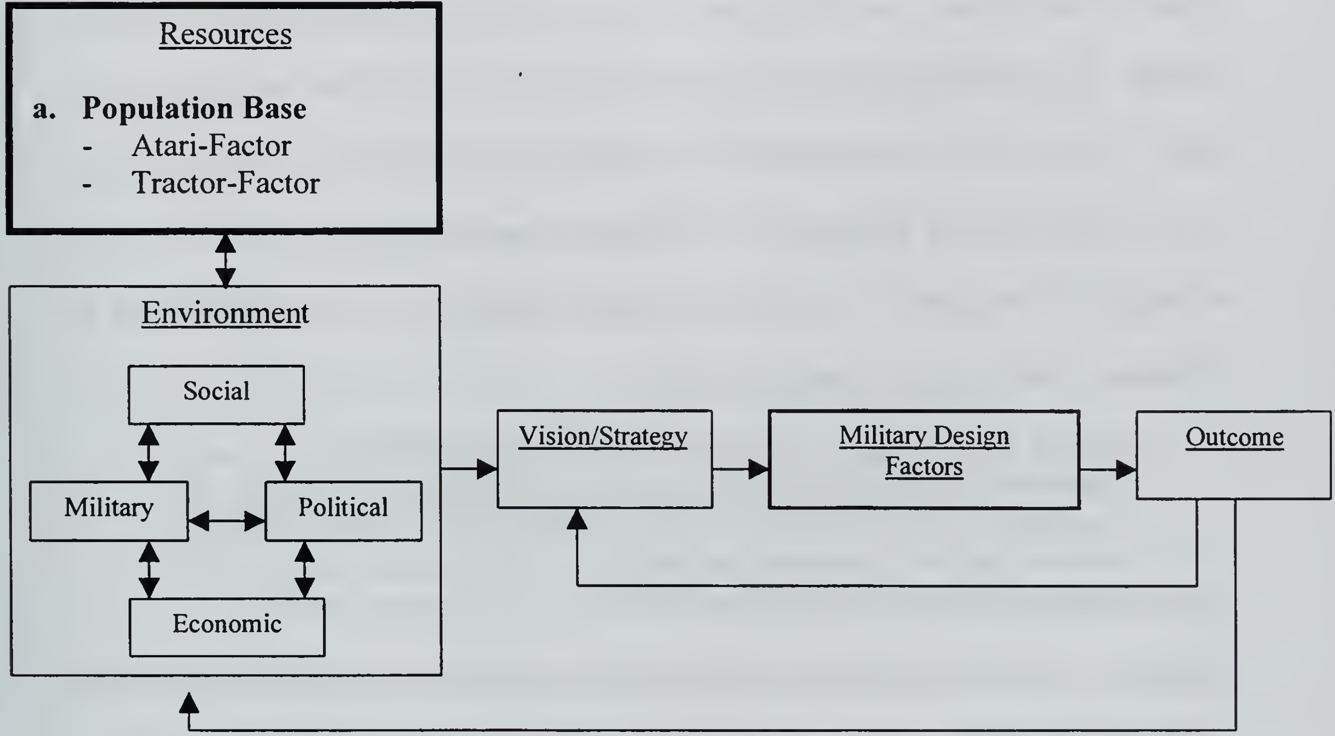
[20] Education in this context means general training (e.g., reading and mathematics).

Another issue is the effect of educational benefits provided by the military on the military labor supply. Moskos (1994) points out that military life is valued not only for its own sake, but also because it is seen as a way to acquire in-service job training and post-service educational benefits.[21] Thus, it can be expected that, in countries where tuition is low or almost free (i.e., Germany), the marginal effect of educational benefits on the enlistment supply would be smaller.



Source:Adapted from David A. Nadler and Michael Tushman, “A Congruence Model for Diagnosing Organizational Behavior” in David A. Kolb, Irwin M. Rubin and Joyce S. Osland. *The Organizational Behavior Reader.* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1991)

Figure 2.6. Population Base as an Important Resource for the AVF

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[21] See Charles Moskos, “Recruitment and Society after the Cold War,” in Eitelberg and Mehay, eds., *Marching Toward the 21st Century.*

f. Taste

The last factor is the individual's "taste" for the military, which is closely related to the concept of "occupational choice" mentioned earlier. Although this framework provides a starting point for thinking about initial enlistment supply, it must be expanded to explain enlistment behavior more fully.

Military manpower planners in the U.S. and Britain observed an interesting phenomenon. In their societies, and they suspected in every one, a small group of men, by their very natures, welcome the rigorous discipline, deprivation, and danger of the military: and these men will elect that life regardless of the economic rewards. The British labeled these men as the "French Foreign Legion hard core." (Tarr, 1981) They noted, too, that their societies also include people who will accept military life if it offers them a combination of economic rewards, security, variety, adventure, training, and many other attractions that young people seek. These people will be influenced considerably by financial incentives.

> Beyond these groups, according to the British, you will attract few people regardless of the incentives you offer. Where the line might be drawn they could only guess. But clearly, many with whom we talked so intently believed that they had nearly reached the line by recruiting 1.3 percent of the available pool. (Tarr, 1981, p. 127)

The fact that some people prefer the content and structure of military employment, while others do not, supports the theory of a nonlinear relationship between financial incentives and military labor supply. The assumption is that one's "taste" for the military is the main influence on the shape of this curve.

Figure 2.7 shows the expected effects of wage on military labor supply. The supply curve in this situation is more elastic on the lower portion. This implies that the military can increase the pool of applicants from "R1" to "R2" by increasing the wage rate from "W1" to "W2" because individuals are attracted to the military profession. The upper portion of the supply curve, in contrast, is more inelastic, which implies that people are less willing to support the armed forces with labor and that the military has to increase its wage significantly to be able to attract more applicants.

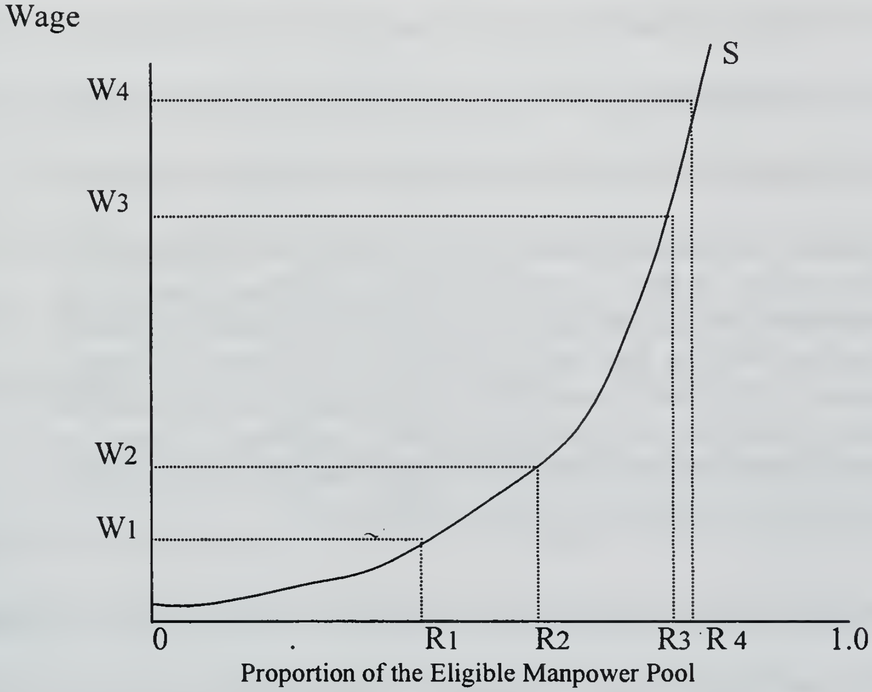

Figure 2.7. The Effect of "Taste" on Military Labor Supply

These findings refute the Gates Commission's conclusion that the military could attract more people by offering more money. It shows that, especially in the long run, financial rewards have limited attractiveness to certain individuals and that the "taste" factor is important.

The key issue manpower planners face in the long run is how they can influence the factors that determine the shape of the supply curve to make it more responsive. The military manpower community, therefore, recognized the importance of tracking youths' attitudes and propensities toward the military, and then using this information in recruiting programs.[22]

D. CHAPTER SUMMARY

A successful implementation of an AVF starts with a clear definition of the task and the future requirements of the armed force. It evokes the question about what and how many resources should be used to achieve these goals. The importance of the manpower factor in the conceptual model of military success has been expressed in a number of ways. As Les Aspin, the former U.S. Secretary of Defense, observed:

> The key element of maintaining forces ready to fight is to maintain the quality of our people, so that they remain the best fighting force in the world. This means keeping our personnel highly motivated by treating them fairly and maintaining their quality of life. It also means continuing to recruit talented young men and women, expanding career opportunities for all service members, and putting in place programs to ease the transition to civilian life for departing military personnel as we bring down the size of our forces. (Fredland et al., eds., 1996, p. 23)

All armed forces are faced with the same dilemma: to get the best possible men and women, and to get them in sufficient numbers. High-quality personnel are, by definition, in high demand and in short supply, and manpower planners therefore have to compromise with regard to either the quality or the quantity of recruits, or both. Typically, where such adjustments are necessary, all-volunteer forces tend to sacrifice quantity; compulsory military forces, on the other hand, tend to sacrifice quality. (Cooper, 1977, Haeckler, 1970)

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[22] See Mark J. Eitelberg, "The All-Volunteer Force After Twenty Years," in Fredland et al., eds., *Professionals on the Frontline.*

Successful defense management under all-volunteer conditions needs an understanding of a number of questions, including the responsiveness of personnel supply to pay and other policy tools, the optimal amount of training, the optimal experience and quality mix, and the proper mix of pay and other incentives.[23]

For Marcus and Quester (1984), the main problem of the military labor market is not on the supply side: "The side of the market that we do not understand is the demand side." (Marcus and Quester, 1984, p. 2) They see the importance of knowing what kind of personnel are most productive and how different force configurations enhance or reduce military effectiveness. Eitelberg (1993) and Cooper (1977) call it the "mix" of the force. The difficulty in determining the "optimal mix" arises from the fact, as mentioned above, that there is no tangible measurement of military output.

Meeting both quality and quantity requirements for military human resources is the most critical factor for an AVF. The desired level of effectiveness, technology, and capability of the military service sets the quality and quantity of manpower needed. According to Bonnardot, "this need is combined with the price the nation accepts to 'pay' for its security, constraints on individual freedom and finances." (Gerard Bonnardot, 1997, p.3)

Marcus and Quester (1984) state that, although research is able to estimate with at least some accuracy the decision of an individual to join or to remain in the military, there are still factors that have not been quantified. The supply of volunteers is, according to Moskos (1988), Cooper (1977), and Dorn (1993), a function of many factors, such as patriotism, the popularity of the military, and pecuniary as well as nonpecuniary aspects of military service. Although these factors and their importance vary substantially across countries, two of them are likely to be more important in almost all countries: (1) the number of volunteers required and (2) the availability of attractive civilian job offers. (Cooper, 1977)

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[23] See John T. Warner and Beth J. Asch, "The Economics of Military Manpower," in Hartley and Sandler, *Handbook of Defense Economics.*

The determinants of military labor supply must be separated into two types: first, those the military can influence (monetary compensation, non-monetary compensation, propensity to enlist, and quality) and second, those the service cannot influence (unemployment, cohort size, and civilian compensation levels).[24]

When considering military labor supply, one can conclude that the "price" the military has to pay to recruit or to retain the desired quantity and quality of soldiers is affected by several factors. In addition to variables that induce a shift of the curve (e.g., population base, unemployment rate, etc.), a society's attitude toward the military largely determines the slope and shape of the curve.

Thus, the supply of military personnel can, according to Cooper (1977), be defined in an equation as follows:

$$MLS = (W/C, R, U, P, T),$$

where, MLS = Military Labor Supply

W/C = Military / Civilian Pay Ratio

R = Recruiting Efforts

U = Unemployment Rate

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[24] See Department of Social Science, 1997, *The Labor Market for Soldiers.*

P = Population Base

T = Taste for Military Service

As previously noted, the success of an AVF depends mainly on its ability to attract the desired quantity and quality of personnel. This will be achieved at the point where the demand or the expectations can be satisfied. Success of an AVF is, thus, established when the military labor market is in its equilibrium, or, as shown in Figure 2.8, where the labor supply curve intersects the demand for military personnel.

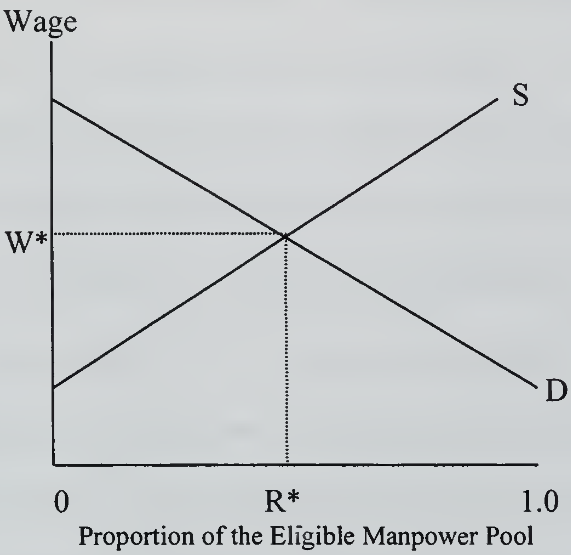


Figure 2.8. The Market Equilibrium

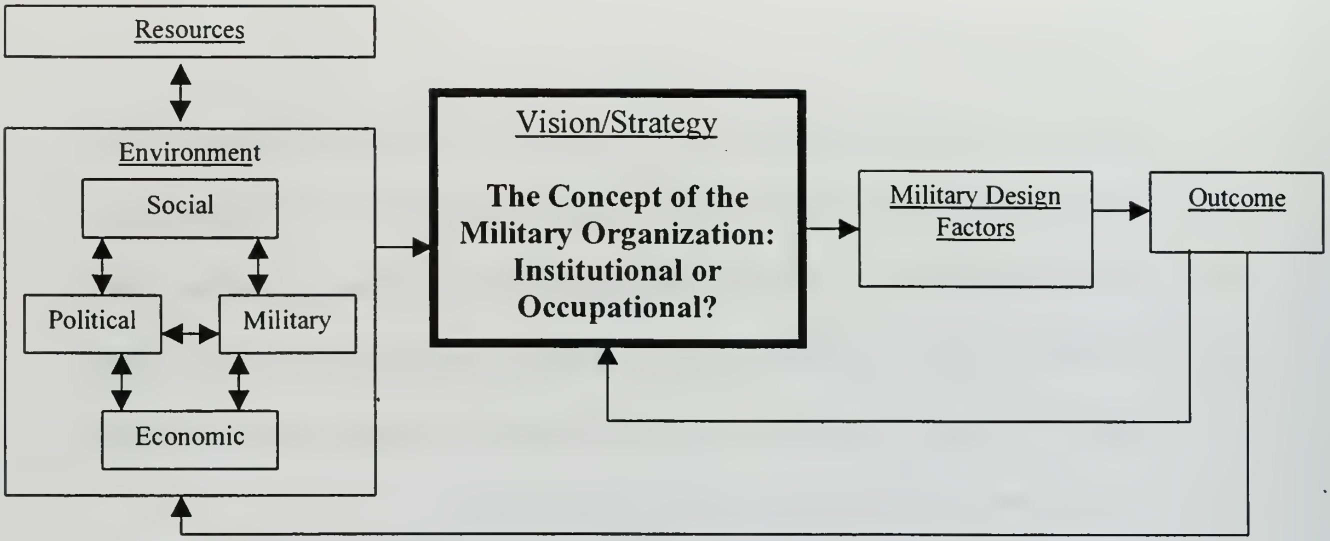
III. INSTITUTIONAL VERSUS OCCUPATIONAL APPROACH IN CONCEPTUALIZING MILITARY ORGANIZATIONS

A. INTRODUCTION

Chapter II introduced a basic model of military labor demand and supply and the problem that defense planners face in achieving a state of equilibrium. The model shows that a successful AVF can be achieved at the point where the demand for military labor equals its supply, or stated differently, where all vacancies can be filled with the optimal mix of quality personnel. The previous chapter emphasizes the goal that defense planners find the "right strategy" for reacting to different market forces.

This chapter looks at the success of a military system from a slightly different point of view. In evaluating the decision to change a military system (e.g., from a draft system to one with all-volunteer recruitment), policy makers have to consider the structure, concept, and culture of the "new" military and its effects on important stakeholders. This chapter explores the "institutional/occupational" or "I/O" model, developed by Charles Moskos, and its implications for the armed forces, with special emphasis on the civil-military relationship and combat motivation of soldiers. As Figure 3.1 shows, the vision and strategy of defense-planners can influence the concept of the military organization.

The I/O thesis was first proposed in 1977, at a time when the U.S. military was undergoing serious crises. As Eitelberg (1996) observes, it was the time when "recruiters missed their goals; personnel attrition seemed uncontrollable; troop morale waned along with public perceptions of the military; and reports of disciplinary problems, drug use,



Source: Adapted from David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior" in David A. Kolb, Irwin M. Rubin and Joyce S. Osland. *The Organizational Behavior Reader.* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1991)

Figure 3.1. The Concept of the Military Organization: Institutional or Occupational?

and standard performance circulated widely." (Fredland et al., eds., 1996, p. 67) Moskos (1988) ties the causes of the so-called "hollow force" of the late 1970s to the Gates Commission Report (1970), which established a free-market approach and overlooked many important spillover effects of AVF policies. Since the end of the draft, the U.S military has been steadily been moving away from the institutional format to one that is occupational. (Moskos and Wood, eds., 1988) The econometric approach of military manpower also failed, in his view, because of its inability to anticipate second-or third-order outcomes of a marketplace AVF.[25]

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[25] See Charles Moskos, "The Marketplace All-Volunteer Force," in Bowman et al., eds., *The All-Volunteer Force After a Decade.*

Moskos' I/O thesis gained attention not only from social researchers on military organization, but also from a number of senior commanders in the armed forces. Although the following discussion draws heavily on the American experience, the essential differences between institutional/occupational models of military organization are expressed in terms suitable to cross-national research.

B. THE OCCUPATIONAL VERSUS THE INSTITUTIONAL MODEL

Armed forces are complex organizations. Given their size and internal diversity, they obviously share many features with civilian organizations of comparable complexity. (Kurt Lang, 1972) Budget constraints and the need for more efficient and effective use of scarce resources raises a fundamental policy question about the structure and concept of military service in the future. These issues are significant, especially for nations that consider a change from compulsory military service to an AVF. Two questions are key to the discussions between sociologists and economists, or as Fleckenstein (1988) states, between traditionalists and reformers: Should an all-volunteer military rely on the expertise and management styles of civilian enterprises? And, how would such a policy affect military capability and the relationship between the armed forces and society? The answer to these questions is still under debate.

From the earliest days of the AVF in the United States, two basic concepts have dominated the discussion about the role and concept of the military organization. These models are called the "occupational" and "institutional" approaches. Even though these terms have descriptive limitations, they do contain core connections that serve to distinguish each from the other. (Moskos, 1988)

1. The Occupational Approach

The occupational model is based on the assumption that each individual tries to maximize his or her level of utility where utility depends importantly on money income and job satisfaction. In the post-industrial age, quality of life, as well as personal freedom and individualism, are getting more important, especially for the younger generations in modern societies. Defense planners are facing the problem of how to motivate this group of young men and women to join the military, where they have to relinquish personal control to the government over the following: exposure to the risk of combat; relocation of themselves and/or their families; work requirements on holiday, weekends, and overtime; family separation; and exposure to conditions and hazards of field duty. (5th QRMC, 1984, p. I-5) Clearly, this issue is much more important for nations that base their military manpower procurement on volunteer recruitment than for those that rely on compulsory military service.

Advocates of the occupational approach claim that, to ensure successful defense management, the "modern" military (e.g., AVF) must be able to compete with other organizations for scare resources (e.g., quality personnel) in the marketplace. They see the need for structural and ideological changes in the military organization and recommend using the expertise and management strategies of private organizations. Warner (1984), therefore, suggests that military manpower planners should base their decisions mainly on the supply and demand framework, rather than on normative considerations. He identifies four distinguishing characteristics of the occupational approach: efficiency, response to incentives, consumer preferences, and current value of compensation.[26]

The AVF experience in the United States provides one good example of the occupational approach in conceptualizing the military. The Gates Commission (1970) addressed the problem of how to make a successful change from a draft system to one that relies solely on volunteer recruitment. The Commission's findings were based on the core assumption that all-volunteer recruitment would work only if military manpower planners react appropriately to changing market situations; that monetary and nonpecuniary incentives could make a difference in military enlistment and retention rates. The commission believed that the fundamental goal of the compensation system should be to obtain the correct mix of personnel at the lowest possible cost. This is one reason that, since the implementation of the AVF in the U.S. in 1973, the military has relied primarily upon the competitive labor market to obtain personnel. Moskos (1988) sees the occupational model legitimized only in terms of the marketplace. He concludes that the occupational military is anchored mainly in marketplace principles and is based on the following set of core assumptions:

> (1) No analytical distinctions exists between the military and other systems, in particular, no differences between cost-effectiveness analysis of civilian enterprises and military services; (2) military compensation should as much as possible be in cash, rather than in kind or deferred, thereby allowing for a more efficient operation of the marketplace; and (3) military compensation should be linked directly to skill differences of individual service members. (Moskos and Woods, 1988, p. 17)

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[26] See John Warner, "Issues in Evaluating Military Compensation Alternatives", as cited in Harris, *Military Compensation and the All-Volunteer Force.*

2. The Institutional Approach

On the other side those are who argue that, because of the "uniqueness of the military"[27] and the concept of the citizen soldier, the occupational approach would lead to a decline of acceptance of the armed forces in society and, furthermore, would hurt military readiness. Proponents of this approach claim that the military can be effective only if all of its members subordinate their personal desires to the greater purpose of the military organization. They state that the unique conditions and demands of military service require servicemembers with special characteristics. As a 1982 task force observes:

> Military members, beyond having the physical and mental abilities required for their jobs, must have a special measure of dedication and loyalty to their comrades in arms and their military organization. These qualities must be underlaid with a love of their country and its ideals. (Military Manpower Task Force, 1982, p. xvi)

The institutional approach differentiates between the functions of military and civilian occupations and uses the specific characteristics of the military vocation as guiding principles.[28] Karl Lang defines an institution as a "place of residence and work where a larger number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead an enclosed and formally administered life" (Lang, 1972, p. 55) The institutional concept hinges on the idea that members of an institution are motivated primarily by a sense of identity with the organization. Their commitment is grounded on values of "duty," "honor," and "country," and on the belief that military service is a "way of life" and not a "job."[29] German traditionalists of the military vocation express the special commitment and responsibility of soldiers in the phrase, "Soldatsein ist kein Beruf, sondern eine Berufung," which means "To be a soldier is not a job; it is a calling." The institutional approach assumes that "the armed forces are not merely fluid collections of self-maximizing individuals, but sets of social relations and institutional arrangements as well." (Moskos and Woods, 1988, p. 4) Military forces require certain behaviors from their members that can, in accordance with Moskos and Wood (1988), never be made to serve individuals' interests, particularly not in a narrow economic sense. It is, therefore, the philosophical question about why and for what reasons do soldiers risk their life and health? Or, what is the "price" of a human being? Consequently, it is not surprising that a soldier's motivation in combat has been interpreted in many ways throughout history. Moskos (1988) and Lang (1972) summarize the different viewpoints of combat motivation. One interpretation finds combat motivation resting on the presumed national character of the general populace; another sees it is a result of effective military leadership, discipline, and unit esprit de corps. Still others believe that the effective soldier is motivated either by a sense of national patriotism or by a belief that he or she is fighting for a just cause. His or her combat performance, thus, depends "upon commitment to abstract values or symbols of the larger society." (Moskos, 1988, p. 3) Moskos, therefore, sees an institution, in contrast to an occupation, legitimated in terms of values and norms. The conditions under which people live and work develop the sense of identity that binds them together. Cotton (1988) points out that the traditional perception of the military service is a calling, or vocation, to the nation by its citizens, legitimated by broadly-based national values.[30] "Members of an institution [e.g., the military]...are commonly viewed and regard themselves as being different or apart from the broader society." (Moskos and Woods, 1988, p. 16) Supporters of the institutional approach emphasize that members of the armed forces should feel this separation and their special commitment with the community. Therefore, instead of being paid entirely in market-driven monetary wages, they should serve for the institutional benefits of respect and for other social advantages. (Harris, 1994)

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[27] *Uniqueness of the military service* exists because members of the armed forces are legally liable to armed combat. The risks of death or injury, as well as other limitations, require a special blend of commitment and dedication on the part of the individuals who serve in the armed service. (5th QRMC, 1984, p. I-5)

[28] See Bernhard Fleckenstein, "The Federal Republic of Germany," in Moskos and Wood, eds., *The Military*.

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[29] See 5th QRMC, 1984, p. I-3, cited in Harris, 1994, *Military Compensation and the All-Volunteer Force: Lessons Learned.*

Table 3.1 summarizes the conceptual differences between the institutional and occupational approach.

C. INSTITUTIONAL AND OCCUPATIONAL TRENDS IN MILITARY SERVICES

Although the military must maintain its autonomy, it also needs support and integration in society, especially in democratic nations. The decision to implement an AVF is closely related to the vision about the role of the military in the community and its relationship to society. On one hand, a military system (e.g., an AVF) is seen as successful and affordable only if it finds credibility, support, and acceptance in the nation. On the other hand, military organizations are also appraised for their ability to manage scarce resources effectively and efficiently. Because of the duality of autonomy

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[30] See Charles A. Cotton, "The Institutional Organization Model and the Military," in Moskos and Wood, eds., *The Military.*

Table 3.1. Military Social Organization: Institutional vs. Occupational

Variable	Institutional	Occupational
Legitimacy	Normative values	Marketplace economy
Societal regard	Esteem based on notions of service	Prestige based on level of compensation
Role commitments	Diffuse; generalist	Specific, specialist
Reference groups	"Vertical" within the armed forces	"Horizontal" with occupations
Recruitment appeals	Character qualities; life-style orientation	High recruit pay; technical training
Evaluation of performance	Holistic and qualitative	Segmented and quantitative
Basis of compensation	Rank and seniority; decompressed by rank	Skill level and manpower shortages; compressed by rank
Mode of compensation	Much in noncash form or deferred	Salary and bonuses
Legal system	Military justice; broad purview over members	Civilian jurisprudence; limited purview over members
Female roles	Limited employment; restricted career pattern	Wide employment; open career pattern
Post-service status	Veterans' benefits and preferences	Same as nonserver

Source: Charles C. Moskos, "Institutional and Occupational Trends in Armed Forces", in Charles C. Moskos and Frank R. Wood. *The Military: More Then Just a Job.* (McLean, VA: Pergamon-Brassey's International Defense Publisher, 1988), p. 16.

versus the need of recognizing societal trends, two alternative conceptions of the military have dominated the discussion about the conceptions of the AVF in the United States. (Moskos and Wood, eds., 1988) The major concerns of Moskos' I/O model are the social legitimacy of the military within the society and, as Cohen states, "the cohesion and operational commitment within the military community." (Moskos and Woods, 1988, p. 44) Cotton (1988) supports this theory. He emphasizes the open character of the military system because of an interactive and interdependent relationship between the military and society.[31] As Cotton writes: "The I/O model focuses our attention on the ways in which the military service and organization are defined socially, both inside and outside the defense community." (Moskos and Woods, 1988, p. 42)

Moskos (1988), furthermore, states that the I/O concept contains an implicit understanding of motivation. And he asks: "is motivation rational or subjective, oriented toward moral concerns of altruism, strongly affected, perhaps, by internal emotional concerns, or is it efficient and rational, concerned primarily with objective calculations?" (Moskos and Woods, 1988, p. 25) The I/O theory raises the question of why people decide to join the military. Do individuals join the military because they see service in the armed forces as a kind of duty and responsibility to the nation? Or, do people join because they are attracted only by financial incentives and job security? It would be injustice to reality to consider these questions only in their extreme form. Individuals also join the military because they are attracted by the financial incentives as well as by their feelings of responsibility for their nation. Moskos points out that the pure form of the institutional and occupational concept does not exist in reality. He emphasizes that “ both elements have been and always will be present in the military system.” (Moskos and Woods, 1988, p. 15)

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[31] See Charles A. Cohen, "The Institutional Organization Model and the Military," in Moskos and Wood, eds., *The Military*.

The discussion about rearmament in Germany and the debate about the structure of the Bundeswehr and its role in the society provide a different evaluation of the effects of the occupational concept of the civil–military relationship. The conceptualization of the military is, according to Bernhard Fleckenstein (1988), closely related to a country’s historical experience with the military and the soldiers’ perception of themselves in society. Fleckenstein asks: “Do soldiers claim a special role for themselves...or are they willing to enter into a close association with the civilian population?” (Moskos and Woods, 1988, p. 178) In Germany, the discussion of the military vocation is especially problematic because of the country’s history. Therefore, the discussion about the concept of the Bundeswehr was and still is more focused on the effects of the military profession self-image than on the relationship between the military and society. It was the declared will of lawmakers in Germany to integrate the Bundeswehr as much as possible into the industrially-developed and democratically- constituted society, to prevent military life, according to Fleckenstein, from “developing again independently of its society, and to prevent the new military from becoming once again a ‘state in the state’.” (Moskos and Woods, 1988, p. 188) The founders of the Bundeswehr were, in Fleckenstein’s view, clearly influenced by the idea of the occupational military. He notes that the concept of *Innere Fuehrung*, which laid the basis for the Bundeswehr, is aimed toward the intellectual, political, and moral reform of the armed forces in the Federal Republic of Germany (FRG). Reformers such as Count von Baudissin believed that the only way to fully integrate the Bundeswehr into society was to equate military and civilian work. Their concept was based on the idea that the soldier’s job should no longer be considered as a job "sui generis," but as an occupation like any other. The military was conceived as an "institution of the public services"; the military profession was viewed as a profession like any other; the working conditions and duty requirements of the soldiers were to be made as similar as possible to the conditions of civilian employment and especially similar to those of the civil service. In a 1970 White Paper, the German Ministry of Defense attempted to describe the "new soldier of the Bundeswehr." In a clear trend toward occupationalism, soldiers were regarded as employees, just like policemen, firemen, workers on an assembly line, or technicians.[32] This resulted in the right of a soldier to join professional organizations and unions[33] as well as the general right to work for his or her goals.

Baudissin and his colleagues were confronted with serious criticism. Their opponents, such as Heinz Karst, Winfried Martini, and Friedrich Dopner, demanded a retreat from the Baudissin's concept, which, in their opinion, had proven ineffective and inapplicable.

On the ideological level, the discussion between the reformists and traditionalists about a vocational model for the Bundeswehr continues today. However, the reformers' ideas were largely realized in the military legislation, and, in Fleckenstein's view, the Bundeswehr became the prototype for occupational military. Fleckenstein writes: "Nevertheless, historical experience and ingrained personal traits cannot simply be supplanted by other concepts; the inertia of traditional concepts concerning soldiers and the military life have always been strong, and they are so now." (Moskos and Wood, eds., 1988, p. 18I)

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[32] See White Paper, 1970, *The Security of the Federal Republic of Germany and the Situation of the Armed Forces,* cited in Fleckenstein, "The Federal Republic of Germany."

[33] For example, the German Armed Forces Association - DBwV: Deutscher Bundeswehr Verband e. V., or the Union for Public Utilities and Transportation – OTV: Gewerkschaft Offentlicher Dienst, Transport und Verkehr.

The current discussion, however, has lost much of the fervor of the debates in the 1960s and 1970s. In addition to the traditional and reformists orientations, a third approach has emerged, the so-called pragmatic. The national discussion on the military vocation of the Bundeswehr can be clarified schematically, as shown in Table 3.2., by applying these three approaches.

According to Fleckenstein (1988), on the ideological level and according to the official version, the debate continues between traditionalists and reformists concerning a vocational model for the military. He states: "In daily practice, however, the pragmatic approach has come to dominate; this approach is synthetic result of the ambivalence present in the discussion in the Federal Republic [of Germany], which could be found even in time of German rearmament. (Moskos and Wood, eds., 1988, p. 180)

D. CHAPTER SUMMARY

The occupational and institutional approaches clarify important issues that may have a crucial effect on the success of an AVF, most notably the relationship between the armed forces and society. The discussion above shows that both concepts differ in their values, which may influence the culture in the military organization significantly. Moskos' I/O thesis can been seen as an attempt to conceptualize the effects of military policies both on military effectiveness and on the relationship between the armed forces and society. Therefore, advocates of the institutional approach need to realize, as Cohen (1988) states, the "open character" of the military organization. This implies a

Table 3.2. Three Conceptions of the Military Service in the Federal Republic of Germany

Aspects	**Traditionalist**	**Reformist**	**Pragmatist**
Purpose of the Bundeswehr	Defense of the country against its enemies (use the force)	Deterrence (and defense) within the NATO alliance (prevention of armed conflict)	1. Deterrence 2. Defense 3. Aiding the civil population at home and abroad
Soldier's task	To fight and win (war service)	To prevent war and keep the peace (peace service)	To deter and, in a defensive emergency, to fight
Nature of the military	The military is an order-like community of fighting men/warriors	The military is part of the public service (insurance against injury from the outside)	The military is a large, bureaucratic-technical organization with functionally determined characteristics
Soldier's ethos	The soldier is a warrior	The soldiers serves the cause of peace	The soldier must prepared to fight in order to not forced to fight
Vocation concept	A profession sui generis, unlike all others	The work is a job like any other	A profession with comparable and incomparable characteristics
Vocation motivation	Fatherland, honor, duty, Western culture, anti Communism, Eastern enemy (community)	Freedom, law, human dignity, democracy (society)	Own interests, life-style, upward mobility, career, salary (individual)
Relationship to civilian society	Soldiers have special status (incompatibility)	Soldiers are citizens in uniform (convergence)	Soldiers are citizens among citizens, but with special duties and restrictions
Uniform	Uniforms are honorable attire	Uniforms are work clothes	Uniform are battle outfits and work clothes
Soldiers and politics	Soldiers should remain nonpartisan and feel committed to community good (servant of the state)	Soldiers should exercise civilian rights and be involved in politics and society (citizen of the state)	Soldiers should exercise civil rights but remain nonpartisan
Interest groups	DBwV ("professional")	OTV ("union life")	Favors DBwV but also accepts OTV
Salary	According to rank	According to performance	According to rank with bonus for performance
Duty hours	A soldier is always on duty	40-hour week similar to civilian service	Overtime or compensation in time off for over 40 hours a week

Source: Bernhard Fleckenstein, "Federal Republic of Germany," in Charles C. Moskos and Frank R. Wood, *The Military: More Then Just a Job.* (McLean, VA: Pergamon-Brassey's International Defense Publisher, 1988), p. 181.

correlation between the effectiveness of the military organization with its values and culture, and society's attitude toward that organization.

Fleckenstein (1988) mentions the importance of considering a nation's historical experience with the military. By using the example of the Bundeswehr in the Federal Republic of Germany, he shows that the military self-image and the relationship between the armed forces and society can be as important as military effectiveness itself. How will an AVF be seen in the nation? Will people still accept it as an integral and important part of the community? Do they fear that removal of the draft would threaten normal methods of civilian or democratic control over the military? Or will the military lose credibility after the change from a draft to an AVF because of the belief that "economic soldiers," as Machiavelli states,

> will never be stand firm or sure, as they are disunited, ambitious.... [They have] no fear of god and keep no faith with men.... [T]hey have no love or other motive to keep them in the field beyond a trifling wage, which is not enough to make them ready to die for you. (Machiavelli, 1513, p. 55)?

Defense planners have to consider these facts and must, therefore, be sensitive about the image of the military in society.

IV. THE SUCCESS OF AN ALL-VOLUNTEER FORCE

A. INTRODUCTION

A nation raises and maintains military forces for two primary purposes: to deter others from employing military forces against it and to conduct military operations if deterrence should fail. Melvin R. Laird (1980 b) sees part of the problem of analyzing the state of military preparedness as a schematic; it is attributable to confusion in terms. Laird writes:

> Some people who discuss the issue talk about the capabilities of our [U.S.] armed forces to achieve certain objectives. Others talk about the readiness of our [U.S.] forces to undertake certain mission. Still others use capability and readiness interchangeably. In fact, capability and readiness are not the same. Capability is the more inclusive concept. Readiness, on the other hand, is a component of capability. But both are important. (Laird, 1980 b, p. 2)

It is difficult to develop a conceptual model that explains the effectiveness and efficiency of a military system because it is not easy to find reliable measurements of military output in peacetime. Moskos (1986) claims that the success of a military system should not be explained solely on the basis of economic considerations, because this approach omits many other important variables that affect the system.[34] This understanding is important, particularly if a major reorganization or restructuring of a military system is intended. The goals and objectives of a change involve questions about what one wants to achieve and how one can achieve it. The answers to these questions are crucial to any policy analysis process. For example, if a nation is considering a change in its military system, an evaluation of its decision should start with a definition of the intended outcome of this policy. "To find out how effective the various means or alternatives are in achieving those objectives, it is necessary to determine a way to measure their effectiveness." (Quade, 1989, p. 53)

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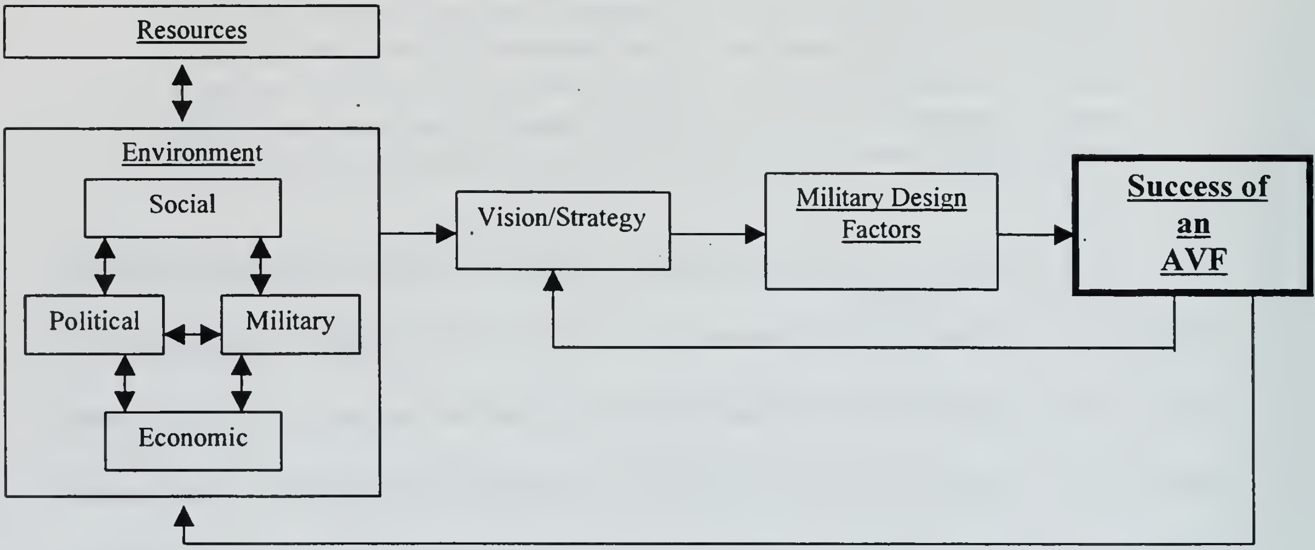
[34] See Charles C. Moskos, "The Marketplace All-Volunteer Force: A Critique," in Bowman et al., *The All-Volunteer Force After a Decade.*

As Figure 4.1 shows, this chapter introduces the "dependent variable" of the conceptual model. The dependent variable is called *"The Success of an AVF."* The chapter also discusses the difficulties in determining and evaluating successful defense management, especially under peacetime conditions, and suggests methods that might be helpful in collecting performance data.



Source: Adapted from David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior" in David A. Kolb, Irwin M. Rubin and Joyce S. Osland. *The Organizational Behavior Reader.* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1991)

Figure 4.1. The Success of an All-Volunteer Force

B. THE ECONOMETRIC APPROACH TO EVALUATING SUCCESSFUL DEFENSE MANAGEMENT

Many policy analysts agree that making defense management analytically tractable is the main challenge of defense planners. (Bowman, et al., eds., 1986).

Because it is difficult to find quantitatively reliable measures for the effect of political and social factors on military output, the question of "how much defense?" is regarded mainly as an economic problem. Broadly stated, the policy problem facing defense planners is one of selecting the appropriate amount of defense at the least possible cost. Hitch and McKean (1963) describe it as follows:

> The problem of national security might in theory be regarded as one big economic problem. The nation has certain resources--now and prospectively in the future--which are conventionally classified be economists as various sorts of land, labor, and capital. These resources can be used to satisfy many objectives of the nation and its individual citizens—national security, a high standard of living, social security, a rapid rate of economic growth, and so on. These are, of course, competing objectives. In general, the more resources the nation devotes to national security, the less it will have for social security and vice versa. We could (as some economists have done) conceive of a "social welfare function" which we would attempt to maximize by appropriate allocation of the nation's resources among the various activities satisfying these objectives. (Cooper, 1970, p. 6)

In October 1997, the Biennial International Conference of the Inter-University Seminar on Armed Forces and Society was held. A representative of the French Ministry of Defense, Gerard Bonnardo (1997), stated that the organizational format of a recruiting system for the armed forces--conscription or AVF--is a synthesis and a compromise between defense requirements stemming from an external geostrategic situation and the domestic price a nation is willing to pay in terms of individual freedom and budget for its security at a particular moment. Eitelberg (1993) also sees that an increase in defense spending comes, to some extent, at the expense of social programs, and an emphasis on social programs conversely results in less for defense.[35] This decision determines, to a large extent, the size, structure, and type of military systems.

C. LIMITATIONS OF THE ECONOMETRIC APPROACH

Although econometric approaches can provide valuable insights in assessing many defense issues, they are also impractical in some ways because they do not provide defense planners with the opportunity to analyze the effectiveness of defense management. As Hitch and McKean (1963) write:

> In fact for reasons which will become familiar as we proceed but are in any event obvious, this kind of approach to the problem of national security is completely impractical and sterile. We have to break economic problems, like so many others, into manageable pieces before we can make a good beginning at finding solutions. And in fact, in the United States and all other countries, governments, and departments of defense are organized to deal with appropriate parts of the grand problem at many different levels.
>
> As a beginning let us consider economic problems at each of three rather gross levels. National security, from the point of view of an economist, may be said to depend on three things: (1) the quantity of national resources available; (2) the proportion of these resources allocated to national security purpose; and (3) efficiency with which the resources so allocated are used. (Cooper, 1977, p. 6)

The economic approach is analytically attractive because it enables the policy analyst to sidestep the critical issue of “how much defense?” and instead focus on efficiency in achieving defense. Nevertheless, the use of economic data to evaluate or predict the success of military systems can be quite problematic. Gus C. Lee (1983), for example, observes that econometric models have less predictive power because of their inability to forecast future management problems. At the same time, Moskos (1986) is critical of defense planners who base their assessment of defense management mainly on what he calls "hard" data. He believes that accepting only quantitative data as reliable is a large drawback of the econometric analysis of military manpower procurement in the U.S.[36] As Moskos (1983) states, "a sheerly econometric logic would lead one to conclude: (1) anyone who joins or stays in the service when he or she could earn a better salary outside the military is stupid (or at least unaware of alternatives); (2) we should pay patriotic service members less (because they would stay in the military at lower recompense) than those motivated only by economic concerns; and (3) the most cost-effective enlistment practice would be to recruit from Third-World nations." (Bowman et al., 1986, p. 16) Following this line of thought, Eitelberg (1996) supports the need to use a variety of factors to evaluate the success of all-volunteer recruitment in the U.S. military. In his framework to assess the AVF in the U.S., Eitelberg emphasizes the necessity to consider, in addition to the economic component (money), factors such as the military's ability to attract quality labor, the efficient mix of manpower, mission accomplishment, personnel morale, defense management practices, as well as what he calls "mess control."

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[35] See Mark J. Eitelberg, “The All-Volunteer Force After Twenty Years,”_in Fredland et al., eds., *Professionals on the Frontline.*

D. EVALUATION OF SUCCESSFUL DEFENSE MANAGEMENT

The process of change in a defense system involves cost and a certain degree of risk. To control for both variables, a detailed analysis is fundamental, as are clearly defined goals and plans for the future. As previously noted, the problem with national security, in particular, is the difficulty of measuring the output of military service in peacetime and thus providing decision-makers with an opportunity to evaluate the success of defense management. Successful management of military service in peacetime can be judged on the basis of military, social, political, and economic components, which are introduced in the following sections.

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[36] See Charles C. Moskos, "The Marketplace All-Volunteer Force: A Critique," in Bowman et al., *The All-Volunteer Force After a Decade.*

1. Military Component

The "military" component of the evaluation scheme is related to the degree of readiness and capability of the armed forces and the ability to fight or conduct military operations successfully. To assess the capability of all parts of an armed force to conduct certain functions, Laird (1980 b) suggests the analysis of four separate components:

1. **Force structure**, which includes the number and type of major units the armed forces currently possess—e.g., the number of divisions, air wings, and ships.
2. **Modernization**, which is the rate at which the nation is replacing or adding to its major equipment—e.g., the number of tanks, planes, and ships currently being procured in the annual defense budget.
3. **Sustainability**, which is the ability of the force structure to conduct military operations long enough and with sufficient intensity to achieve objectives. "Sustainability focuses on such areas as the amount of ammunition and spare parts currently possessed by the armed forces, the ability of a nation to keep its deployed forces adequately supplied, and the mobilization base of the country." (Laird, 1980 b, p. 2)
4. **Readiness,** which is the ability of the currently configured force structure to perform its assigned mission whenever required. Readiness of a force or unit is concerned with such issues as the ability to fulfill specific missions and tasks (e.g., for a Minesweeper to conduct a minelaying operation or for a corvette to launch its missiles).

Military readiness, unlike force structure, modernization, or sustainability, is difficult to measure, especially in peacetime. The term "readiness" is used in many different ways. It is used to denote individual and units' ability to do their jobs and to denote national preparedness. The definition contained in a 1995 Joint Chiefs of Staff publication is the ability of forces, units' weapon systems, and equipment to deliver the outputs for which they were designed, and "this includes the ability to deploy and employ without unacceptable delays."[37]

Any system used to measure readiness in peacetime can do so only through the use of substitutes or surrogate indicators. NATO, for example, uses a unit reporting system, called OpRep (Operational Readiness Report), to place units into one of five following categories:

C-1: Fully combat-ready

C-2: Substantially combat-ready, that is, the unit has only minor deficiencies.

C-3: Marginally combat--ready, that is, the unit has major deficiencies but still can perform its assigned missions.

C-4: Not combat-ready because the unit has so many deficiencies that it cannot perform its wartime function.

C-5: Not combat-ready because the unit is undergoing a planned period of overhaul or maintenance. (Laird, 1980b)

The three areas that are evaluated are personnel, equipment readiness, and training. In the area of personnel, unit commanding officers compare the people in their units with the number and type of people that they are supposed to have in the event of a crisis or war. In the area of equipment readiness, commanding officers must evaluate the actual condition or the quality of the weapon systems and supporting elements in the unit. As in the other areas, they do this by comparing the actual condition of the equipment with that prescribed by the service for wartime. Training is the most complex and difficult area to quantify. Here, the commanding officers are asked to evaluate their unit's level of training. They have to estimate the time required for the unit to achieve what the service defines as "full training," or they can evaluate the percentage of full training that the unit has completed. The numerical designation for the combat-readiness of a unit is determined by the lowest grade in the three categories.

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[37] See Joseph J. Went, "The Readiness Challenge," in Fredland et al., eds., *Professionals on the Front Line.*

Although this system seems to provide good information, the results depend mainly on the personal judgment of the commanding officer and could, therefore, be biased.

2. Social Component

The "social" component includes the ability to represent social values and ideals in the military culture, as well as the degree of acceptance and integration of military service in the community. The degree to which the military can fulfill this task is sometimes evaluated on criteria that have little to do with fighting wars, but much to do with current social or political discussions. The U.S. experience provides several good examples. Some of the major public concerns of the 1990s in the U.S. revolve around whether the military "represents" the national population and its ethnic groups at large; whether women should serve in ground combat units; and whether homosexuals should be allowed to serve in the armed forces. Although these problems may have no direct influence on defense capability, they constitute important issues in military policy considerations. A certain degree of acceptance and understanding of military issues in society is fundamental for the armed forces to fulfill their missions in peace and war. Fleckenstein (1988) concludes that the success of a military system lies in understanding the history and culture of the military and society, a comprehensive analysis of the present situation, and awareness of factors that could affect the desired outcome of military policy in the future.[38]

3. Political Component

As the German Federal Minister of Defense, Volker Ruehe, observed in 1994: "If the Bundeswehr is to accomplish the mission and to take up position in the state and society, it is essential that politicians and society as a whole reach a fundamental consensus and provide support." (White Paper, 1994, p. 131) At a 1983 conference on the "All-Volunteer Force After A Decade," U.S. Ambassador Stanley Resor remarked that the AVF has to be judged by the kind of fighting capability it demonstrates to carry out the nation's foreign policy and sustain and support national security interests. The "political" component, therefore, relates to the ability of the armed forces to transform political policies into military strategies and readiness and to provide the government with necessary credibility in its foreign policies. Furthermore, the military will be judged on the degree of its integrity and loyalty to political decisions.

4. Economic Component

The "economic" component relates to the competence of the military to use scarce resources efficiently. This includes the costs of personnel turnover and training and, in particular, the net-productivity of military personnel and return on training investment. Successful defense management is also assessed on the effectiveness of programs, such as educational benefits, health care, and retirement plans. A volunteer military, furthermore, will be evaluated on its ability to compete successfully with the civilian sector in different markets (i.e., within the labor market). This includes the ability to attract, to recruit, and to retain a sufficient number of quality personnel to fill vacancies.

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[38] See Bernhard Fleckenstein, "The Federal Republic of Germany," in Moskos and Wood, eds., *The Military*.

E. CHAPTER SUMMARY

This discussion introduces the independent variable in the conceptual model that explains successful implementation of an AVF. The discussion shows the importance of, first, defining objectives and goals in the policy analysis process and, second, of finding measurements that provide feedback. Unfortunately, such goals may not always be clearly stated or even fully perceived by decision-makers. The discussions in Chapter III and Chapter IV indicate that the expectations placed on the military are likely to be multiple. Furthermore, they may often conflict, depending on whether they are the expectations of sociologists, economists, politicians, or military leaders. Most of these conflicts arise because a number of these expectations are intangible and cannot be quantitatively measured; and, "some [may] even defy formulation." (Quade, 1989, p. 86) Laird (1980) argues that part of the problem in analyzing the state of military preparedness is attributable to a confusion of terms, especially in the definition about military capability and military readiness.

In conclusion, one can say that the success of an armed force is based on four pillars: first, on social acceptance and integration; second, economic effectiveness and efficiency; third, military capability and readiness; and, finally, military credibility with Congress and the administration. The concept of the success of a military system can be expressed in the simple analogy between the military system and an automobile. For an automobile to run, it needs fuel, an engine, and wheels, among other things. Fuel, in this context, symbolizes the military budget. The engine represents manpower and military technology, and the wheels--four in this case--are the political, economic, military, and social components. To move the vehicle most effectively, controlling for engine performance and fuel, all four wheels have to be properly inflated, balanced, positioned, designed, and aligned. Just as omitting one of these components would bring the automobile out of balance, ignoring one of the four components in the AVF model would lead to a decline in military functionality and, therefore, loss of military capability.

Therefore, to manage military service competently and responsibly, defense planners have to understand the individual effect of each of these factors on the success of a military system, as well as the interrelationship between them. This point is particularly important, especially for nations that would like to remove military conscription or predict if all-volunteer recruitment would be successful.

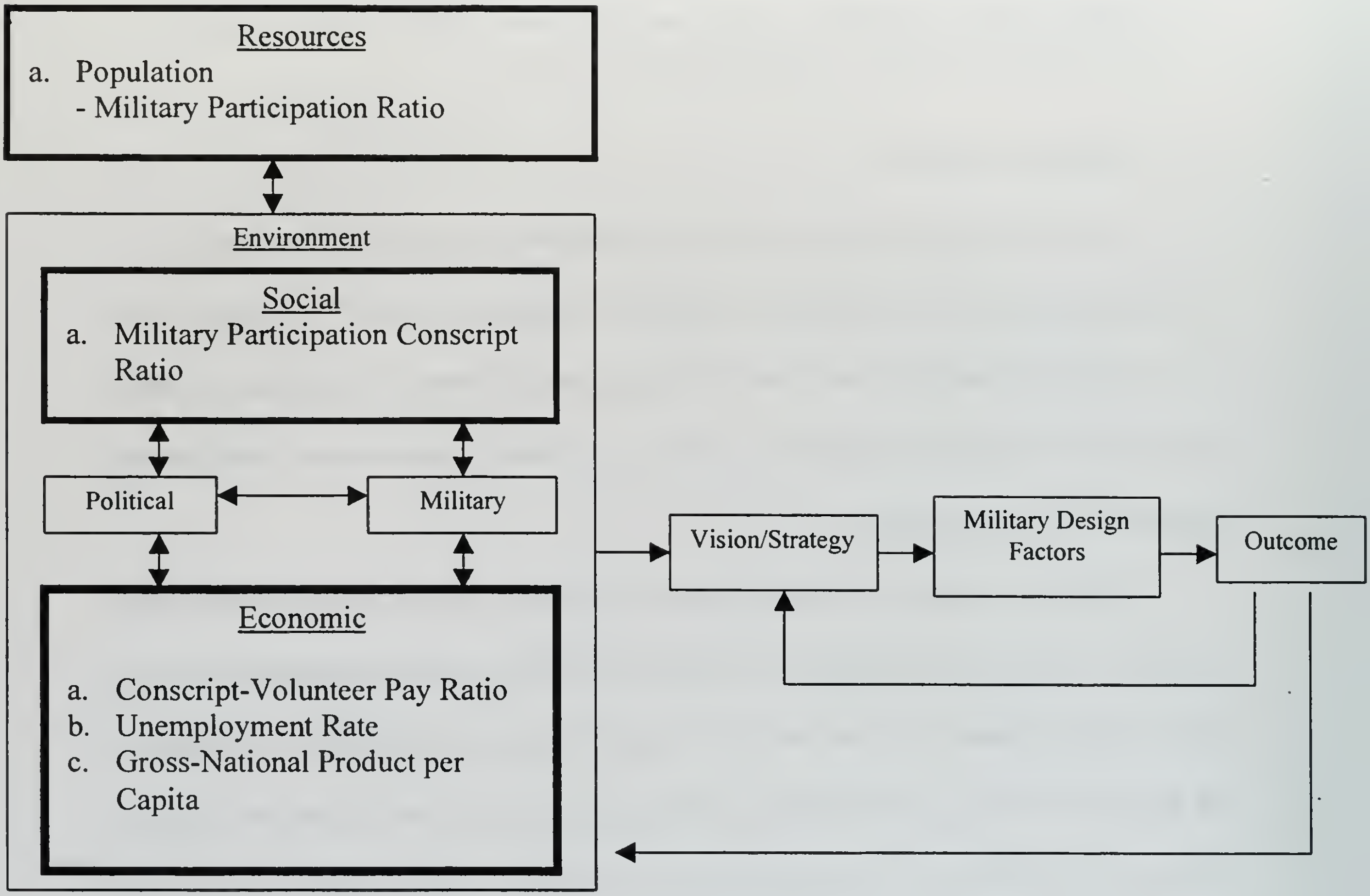
V. ECONOMIC CONSIDERATIONS AND THEIR ESTIMATED EFFECTS ON THE DECISION TO IMPLEMENT AN AVF

A. INTRODUCTION

As Erwin Haeckle observes, "an assessment in economic terms is perhaps the most intriguing aspect in a comparison of military manpower systems." (Haeckel, 1970, p. 18) Many discussions about the effectiveness and efficiency of different military systems center around cost comparisons between voluntary and conscripted soldiers and voluntary and conscript armies.

Although economic considerations are not the only inputs to the ultimate policy decision, as Moskos (1988) suggests, it is clear that resource and cost implications of the various policy options play a central role. "The choice of public policy (i.e., whether to end the draft or not to end the draft) is influenced by the amount of resources used by each policy alternative, so identifying these real resources costs is crucial if the policy choice is to be made." (Cooper, 1977, p. 67)

This chapter introduces, as Figure 5.1 shows, the economic factors and their expected effects on the successful implementation of an AVF. Furthermore, it evaluates the influences of resource factors, such as the "Military Participation Conscript Ratio" and the "Military Participation Ratio" under economic considerations on the decision to remove a draft. The discussion is based on the concept of economic and budget costs of military manpower under volunteer and conscript conditions.


Resources
a. Population
- Military Participation Ratio
Environment
Social
a. Military Participation Conscript Ratio
Political
Military
Economic
a. Conscript-Volunteer Pay Ratio
b. Unemployment Rate
c. Gross-National Product per Capita
Vision/Strategy
Military Design Factors
Outcome

Source: Adapted from David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior" in David A. Kolb, Irwin M. Rubin and Joyce S. Osland. *The Organizational Behavior Reader.* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1991)

Figure 5.1. The Effects of Economic Considerations on the Decision to Implement an AVF

B. ECONOMIC COSTS VERSUS BUDGET COSTS OF MILITARY MANPOWER

In general, one would expect a given country's tendency toward using volunteer recruitment to be a function of the budget costs required to support an AVF. As previously noted, the decision to implement an AVF is often related to the question of cost. Cost, in fact, has many different interpretations. Webster's Encyclopedia Dictionary, for example, defines cost as the "value" of the item in question. Webster's New Collegiate Dictionary defines cost as the amount paid or charged for something.

Depending on who is paying, these definitions can mean very different things. Cooper (1977) draws the distinction between *budget* and *economic* costs of military labor. Budget cost, in his definition, reflects what the public pays in taxes to maintain a military labor force. Economic cost, on the other hand, specifically measures the economic value of labor resources used in the military.[39] This narrow definition of economic cost includes the individual's alternative civilian wage, under the assumption that this wage represents the value of his or her labor services in civilian employment.[40]

To maintain a military thus results in an opportunity cost to the civilian sector, or "a cost that reflects the value of this labor as it could be used in other activities." (Cooper, 1977, p. 67) In an AVF, budget costs and economic costs of military personnel will generally coincide because the military has to pay the actual market value for the desired quality of labor. The distinction between budget costs and economic costs is particularly important during periods of conscription, since the draft enables the military service (and hence the general taxpaying public) to pay less than the market wage for military personnel.

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[39] This general definition may, in accordance with Cooper (1977), be interpreted in either of two ways: (1) the opportunity costs to the civilian economy, in terms of productive output forgone; or (2) the opportunity cost to the individual serving in the military.

[40] The definition of value of labor is based on the concept of marginal productivity (MPL). The marginal productivity of labor is the additional output that can be produced by a firm when it employs one additional unit of labor, holding capital constant.

A firm that seeks to maximize profits will employ labor up until the point where the marginal revenue (MR) it receives from hiring the last employee is equal its marginal cost (MC) of employing that worker. The marginal cost of a unit of labor is the money wage rate that must be paid. The marginal revenue, obtained from hiring an additional unit of labor, also called labor's marginal revenue product (MRP), is equal to the additional output produced. Therefore, **MRP = (MPL) * (MR).**

By assuming that the firm sells its outcomes in a competitive market, where the price of the good does not vary with quantity produced, that additional revenue per unit of output is simply the firm's product price (P). Thus, for firms that operate in competitive markets; **MRP = P * (MPL).** As mentioned earlier, a competitive firm maximize its profits where the marginal revenue of labor is equal to its marginal costs. This situation is achieved at the point at which the marginal revenue product equals the money wage: **P * (MPL) = W.** (Ehrenberg and Smith, 1994)

1. Measurement of Economic Costs

The concept of underpayment has to do with the social issue of producing desired goods and services in the least costly way. It is based on a comparison between the wages actually paid in the civilian labor market and the market-clearing wage for a specific job. At the individual level, however, it is often useful to compare the wage received in a job to one's reservation rate, or the wage below which the worker would refuse to work or quit the job. (Ehrenberg and Smith, 1994)

Cooper's (1977) interpretation of economic cost as the opportunity cost to individuals serving in the military is based on the fact that, by serving in the military, individuals forgo whatever monetary and nonmonetary benefits they could have earned in adequate civilian employment. The standard labor supply model, introduced in Chapter II, provides the basic framework to measure economic cost. Individuals can be arrayed according to increasing supply price, which results in the supply curve shown in Figure 5.2.

The following scenario assumes that military manpower requirements are given. The requirements for an armed force of size R* are shown as the distance between OR out of the pool of eligible personnel. The military labor supply curve, in this case, shows the proportion of individuals who would join the military voluntarily at any given wage. To attract R* volunteers, the military has to pay an average wage rate equal to W*. The smallest possible economic cost corresponding to this force size is given by the sum below the supply curve between the points O and R.

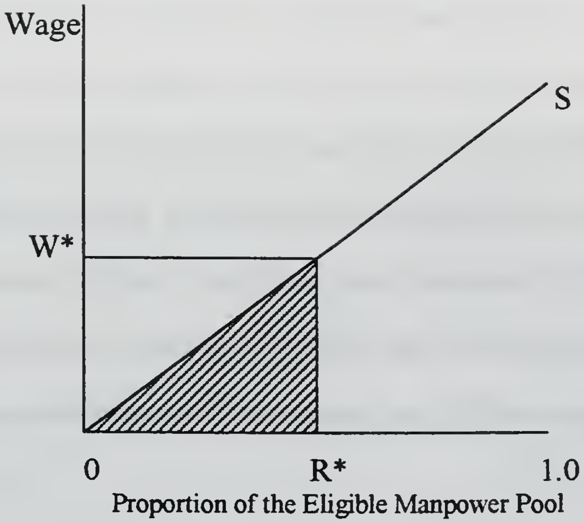


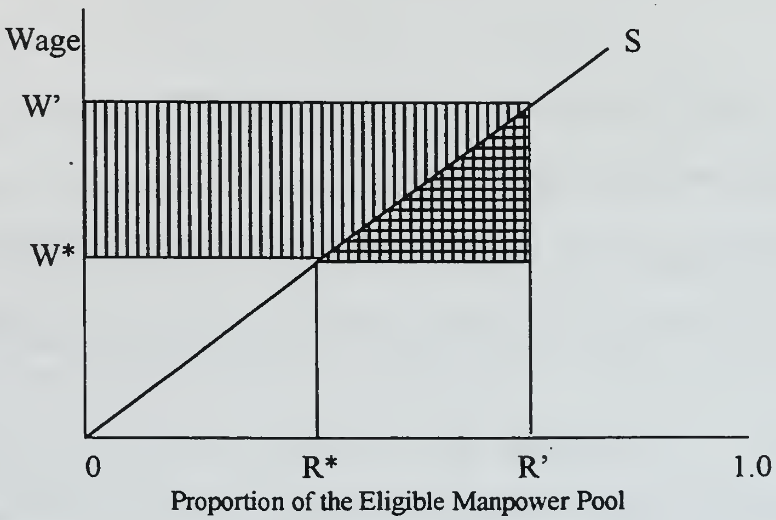
Figure 5.2. The Economic Cost of Manpower

2. The Concept of Conscription Tax

One of the consequences of the draft is the "implicit tax that conscription imposes on young men [and women] of military age so-called conscription tax." (Cooper, 1977, p. 80) Explicit consideration of the conscription tax in this study is important for the following reasons. First, conscription tax is, according to Cooper (1977), an important element of public policy because it reduces the amount of direct taxes that must be levied on the general public and, thus, redistributes income within society. And, second, it is important because budget expenditures associated with manpower substantially understate the value of labor resources used by the military during periods of conscription. Figure 5.2 shows the basic concept used to measure conscription tax.

Under competitive market conditions, the military has to offer an average wage equal to W' to be able to attract the R' volunteers. During times of conscription, however, the military pays a wage equal to W*, which attracts only R* true volunteers. To be able to sustain the desired force size of R*, the military has to fill the remaining vacancies by drafting individuals from the upper level of the supply curve, or those who would not voluntarily join the services at the given wage level W*, for whatever reason. These individuals, thus, have higher reservation rates than the individuals at the lower end of the supply curve.

In the military labor supply model shown in Figure 5.3, conscription tax can be thought of as the difference between the wage that would motivate an individual to join the armed forces voluntarily and the actual draft wage under the assumption that the military drafts the individuals with the lowest opportunity cost. The amount of the conscription tax in the narrow definition is shown as the crosshatched area.[41]



Source: Adapted from Richard V. L. Cooper, *Military Manpower and the All-Volunteer Force* (Santa Monica, CA: The RAND Cooperation, 1977), p. 82.

Figure 5.3. Measuring of Conscription Tax

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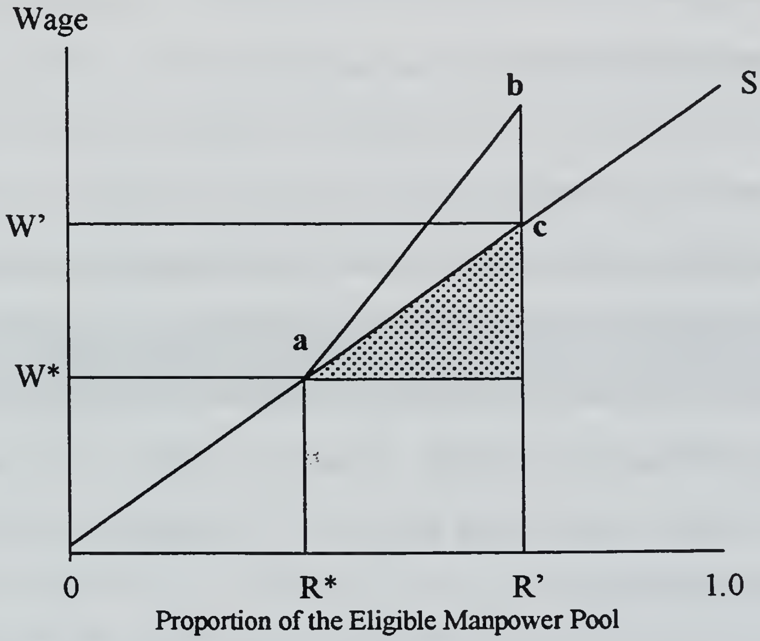
[41] Economists such as Cooper, Sjaastad, and Hansen distinguish between a narrow and a broad definition of the term conscription tax. The narrow definition defines the tax as the difference between the individual's forgone civilian wage and the draft wage and is therefore equivalent to the concept described above. It is shown as the cross-hatched area in Figure 5.3. Conscription tax under the broader definition also considers forgone rents. This would result in the striped and cross-hatched area in Figure 5.3 Cooper sees the importance of the distinction not so much that the two measures of conscription tax differ in magnitude, but, rather, that they have very different meanings with respect to policy questions concerning the income redistribution caused by the draft. (Cooper, 1977) The narrow definition views only those with higher reservation rates as having to pay the tax, whereas the broader definition recognizes the draft extracted from all serving in the military.

3. Selection Process

Since the tax (i.e., narrow definition) is defined in terms of supply price, the actual amount paid depends basically on two factors: (1) the shape and location of the supply curve and (2) who on the supply curve actually serves in the military. (Cooper, 1977) These assumptions make it clear that the estimation of economic costs for a compulsory military system is more difficult than explained in Figure 5.4 and depends mainly on the policy used to select the draftees out of the eligible manpower pool. Figure 5.4 shows the effect of the selection process on the economic cost of military personnel during the draft.



Source: Adapted from Richard V. L. Cooper, *Military Manpower and the All-Volunteer Force* (Santa Monica, CA: The RAND Cooperation, 1977), p. 82.

Figure 5.4. Conscription Tax under Selection Process

The economic cost of military manpower under conscription depends mainly upon who is drafted. At one extreme there is a draft system that is structured in the way that individuals at the lower income level are selected first, as it was practiced in the

United States during World War I. Cooper calls this a "lowest-supply-price-drafted-first" system. The result of such a policy would be that all military vacancies between R* and R' would be filled with people who would serve voluntarily if the military wage were equal to W'. On the other extreme, is a conscription system that is structured in the way that it selects its draftees randomly out of the eligible manpower pool (e.g., a lottery system). Some of those beyond point "b" on the supply curve would also be drafted under this policy. Because individuals on the upper curve have either better earning opportunities in the civilian market or more negative attitudes toward military, they are generally less willing to join the armed forces. Both situations result in higher reservation rates, an increase in the conscription tax, and, hence, a higher economic cost of military manpower by the area "a-c-b."

One can conclude that the more random the selection process, and the more representative of people on all portions of the supply curve, the higher the economic cost of conscription attributable to the selection process. The increase of the conscription tax and, therefore, the inequity issue, will be even greater when a nation considers a reduction of its armed force and where, thus, the proportion of the eligible manpower pool that is drafted will further drop down. However, as Figure 5.5 shows, when all individuals in the eligible manpower pool must serve, the economic cost attributable to the selection process diminishes.

Cooper (1977) observes that conscription tax is larger for the lottery-type draft than what he calls pre-lottery type (i.e., universal military service). Table 5.1 shows the results of his analysis of the conscription tax in 1964 under pre-lottery and lottery systems.[42] Cooper concluded that the undesirable economic consequences of

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[42] Cooper's analysis is based on three alternative assumptions: (1) a constant elasticity supply curve (upward sloping at a decreasing rate), (2) a linear supply curve (upward sloping at a constant rate), and (3) a logistic supply curve (upward sloping at a increasing rate toward the upper reaches of the supply curve).

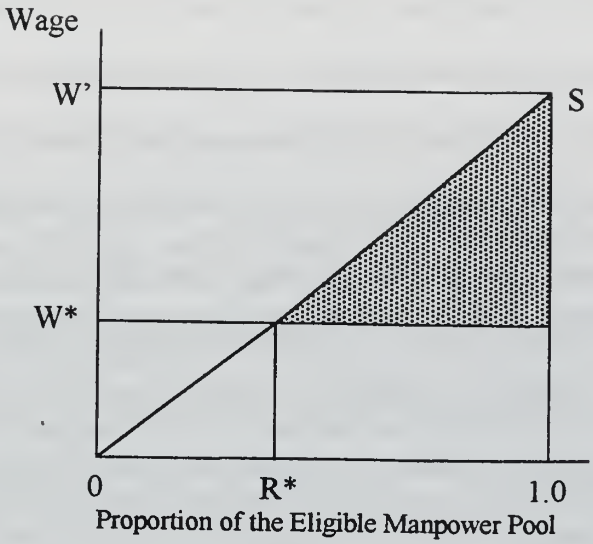


Figure 5.5. Conscription Tax under Universal Military Service

Table 5.1. The Conscription Tax in 1964: Narrow Definition ($ Billions)

Selection Process	Decreasing Slope (Constant Elasticity)	Constant Slope (Linear)	Increasing Slope (Logistic)
Pre-Lottery	$ 2.1	$ 2.3	$ 4.4
Lottery	$ 2.6	$ 3.0	$ 8.7

Source: Cooper, Richard V. L. 1977. *Military Manpower and the All-Volunteer Force.* Santa Monica, CA: The RAND Cooperation.

conscription, holding everything else constant, are largely mitigated when a larger fraction of the manpower pool must serve and, thus, the random character of the selection process declines.

One can expect that the existence of a random selection process has a significant positive effect on a nation's decision to change from conscription to all-volunteer recruitment, holding everything else constant. Haltiner (1997) supports this theory. He states that, to the extent that conscription is practiced selectively and not universally, the social and political pressure for the abolition of the draft rises as a result of this development. Walter Y. Oi (1996) provides a good example of this:

> As the draft for the Vietnam War, for example, became increasingly selective and unpopular, angry voices raised against the existing manpower procurement system spanned the political spectrum. Antiwar activists and students from the left and the right rallied to oppose the war and conscription. Richard Nixon, Tom Curtis, Gaylord Nelson, and Barry Goldwater were among the politicians who had staked out a position against the draft well before the outbreak of the Vietnam War. In his second campaign for the presidency, Richard Nixon reiterated his position: "It is not so much the way they are selected that is wrong, it is the fact of selection." (Fredland et. al., eds., 1996, p. 43)

4. Military Participation Conscript Ratio

The Military Participation Conscript Ratio (MPCR) is defined as the percentage of drafted individuals in a particular age group within a national population. It generally refers to the group of persons who are 18-32 years old and includes conscripts with regular and reserve status.

Historically, the inequity of conscripting young men for the armed forces has been a controversial subject nearly every time the draft has been imposed. When a nation considers to man its armed forces with draftees, inevitable issues arise regarding the burden of paying the conscription tax and the redistribution of income that accompanies the imposition of this tax burden.

The use of conscription leads to two types of income redistribution: *inter*-generational and *intra*generational transfers of income. The latter occurs because the burden of paying the conscription tax tends to fall on the younger generation, usually on young men between 16 and 35 years old and, thus, leads to a redistribution of income from the younger generation to the older generations. Far more important, especially in setting public policy, is the intragenerational redistribution of income that takes place when not all individuals of the eligible manpower pool are required to serve as draftees in the military. This situation results in a redistribution of income between those who are drafted and those who are not. (Cooper, 1977)

The extent of the inequity or, as the Gates Commission calls it, "the extent of the discrimination resulting from conscription," (Gates Commission Report, 1970, p. 27) depends on the proportion of the population forced to serve and the level of compensation provided to those who serve. When a large fraction of the eligible population is conscripted (e.g., 46 percent in Switzerland), then the tax is levied on a larger percentage of the population, and the society will most likely be more supportive of its draft system. Thus, on the one hand, it can be argued that universal military service, in which all must serve (including women), makes conscription more equitable; although conscription falls selectively on a narrow age cohort at any point in time, in the long run all will have to serve. On the other hand, when only some people end up serving, the equity of the draft may be questioned, thus significantly affecting the willingness of young men and women to serve in the military.

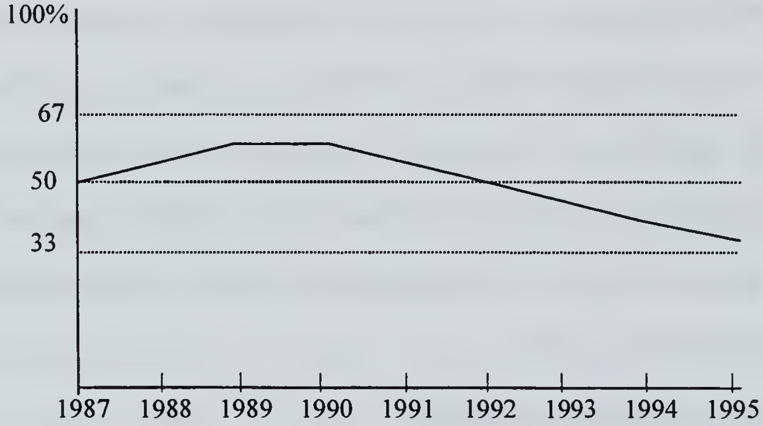
The equity issue became the single most important factor in the move to end the draft in the United States in 1973. As the result of some demographic trends, the number of young men eligible for the military service more than doubled in the 20 years between 1955 and 1975. The military manpower required for the U.S. armed forces was no more than one out of fifteen young people between the ages of 18 and 24. (Laird, 1980a). As Cooper observes, "not only was the burden of conscription limited to a relatively small segment of society–young men of military age–but the growing number of such young men (because of the post-World War II "baby boom"), combined with relatively stable force sizes...making conscription more inequitable over time." (Cooper, 1977, p. 40)

There were, according to Laird (1980a), three courses of action available to the United States to maintain adequate military manpower levels. The first was to continue to fulfill military manpower requirements by using conscripts through a selective service system and by increasing the wage of draftees up to a level of civilian occupations. The second was to establish a national Universal Federal Service, which would provide conscript services for all young people between 18 and 24 years old. This system, according to Laird, "although costing the military less would cost our [the U.S.] Government a great many tax dollars in finding millions of young people proper service employment at low wage rates in hospitals, schools, urban and rural slums, and other areas." (Laird, 1980a, p. 2) The final option was to establish the AVF, which pays a small percentage of the population (approximately 1.2 percent) for military service needed on a competitive basis with other jobs in the civilian labor market.

Although the conscription tax is certainly not the only inequity associated with the draft, this form of discrimination alone was sufficient that "the Executive Branch, the Congress, and especially the young Americans of our [U.S.] country chose the third [AVF] alternative." (Laird, 1980, p. 2)

The equity issue also arises when nations consider the reduction of their armed forces and have to reduce the number of draftees. Great Britain provides a good example. In 1957, the British Minister of Defence, Duncan Sandys, had issued a White Paper for the government on defense policy; Great Britain had decided to rely more upon a nuclear than a conventional deterrence. At the time, the British Government also had decided to withdraw most of its forces east of Suez. (Tarr, 1981) This dramatic change in defense policy led to the decision to reduce the size of the British armed forces substantially. Britain, at this time, was still inducting nearly every eligible young man into the military service. With shrinking forces, universal conscription would provide too many persons unless the British government limited service to such a short term that no effective training would be possible. Decision-makers faced two alternatives to universal military service: selective service or all-volunteer recruitment. "British officials decided that they could not defend selective service to the British people, arguing that such a policy would cause political turmoil." (Tarr, 1981, p. 125) Consequently, Great Britain chose all-volunteer recruitment to man its armed forces.

Downsizing and, hence, a decline in the MPCR, has occurred since the end of the Cold War in almost all Western European nations. Haltiner (1997) observes that, in the period 1987-1991, the average MPCR of 15 selected countries[43] was above 50 percent. " [T]his means that every second Western European citizen at the age between 18 and 32 had to reckon with being drafted for the military service in this time period." (Haltiner, 1997, p. 10) After 1991, the average MPCR dropped to nearly 33 percent. Figure 5.6 shows the trend of the MPCR in 15 Western European nations from 1991-1995.



Source: Karl W. Haltiner, "The Defined End of the Mass Army in Western Europe," Paper presented at the Biennial Conference of the Inter-University Seminar on Armed Forces and Society, Baltimore, MA, October 1997, p. 23.

Figure 5.6. Military Participation Conscript Ratio of 15 Western European Nations, 1987-1995

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[43] Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and Turkey.

A declining MPCR and, therefore, an increasing inequity of sharing the burden of defense, induced the decision in countries such as Belgium, The Netherlands, and even the "motherland of conscription," France, to change their military system from conscription to an AVF. (Haltiner, 1997) Bonnardot describes the situation in France as follows:

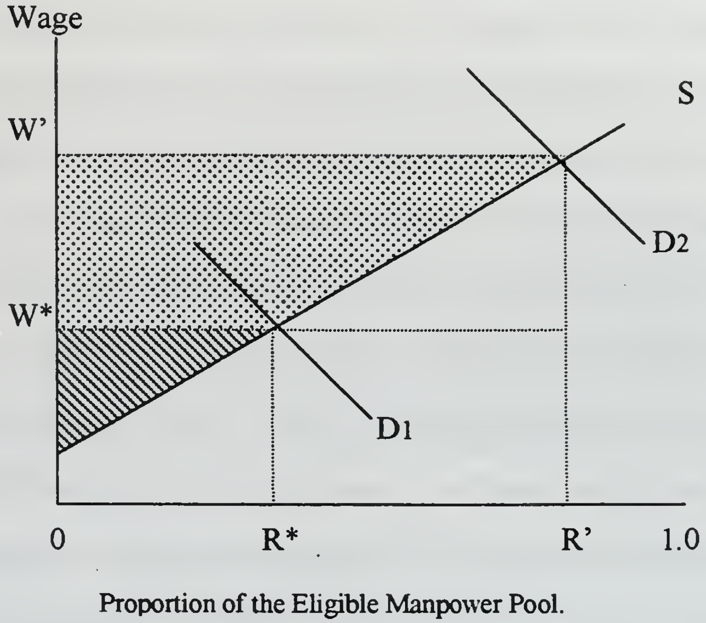
> These processes [force reduction and decline in social acceptance of the military] led to a slow and hardly perceived erosion of the legitimacy of conscription…conscription became more and more unequal…as a matter of fact, military draftees were mainly underprivileged young Frenchmen for it was much more interesting for graduates to be channeled through civilian forms of service for which higher education was required. The military lost its prestige in a general climate of lack of public interest. (Bonnardot, 1997, p. 4)

In summary, one can conclude that military force downsizing, or an increasing national population with a stable force size, causes the burden of conscription to be carried by a smaller percentage of the eligible pool. Haltiner (1997) sees in the MPCR, therefore, an indicator of the degree of military burden-sharing in a society. He assumes that, with a decreasing MPCR and, hence, a decrease in the distribution of the burden, the political and public pressure for removal of the draft system will increase. The assumption is that, holding everything else constant that the MPCR is negatively related to the decision to remove the draft. That means, a low MPCR will positively affect the successful implementation of an AVF.

5. Military Participation Ratio

The Military Participation Ratio (MPR) is defined as the share of a country's population that is either in the active or reserve forces of a nation. Haltiner (1997) sees an advantage in this definition because "this number permits more accurate statements on the size of a country's armed forces than the absolute number of its size without any demographic relations." (Haltiner, 1997, p. 6)

The importance of the proportion of the eligible manpower pool of a population that must serve can be established by a simple comparison between the economic and budget costs of military personnel under conscription and volunteer recruitment policies. Sections 3 and 4 of this chapter discuss the relationship between the excess economic costs of conscription and the proportion of the eligible pool that is required to serve in the military. To understand why conscription might be preferred on economic grounds, it is important to recognize that, although economic cost is (or should be) a key factor in the public policy decision process, a number of other factors—not at least of which is budget cost—are also important. (Cooper, 1977) Figure 5.7 shows a comparison of the economic and budget costs of military manpower under all-volunteer conditions. As previously noted, the sum of the supply prices of those serving in the military equals the economic cost of military manpower. This is shown in Figure 5.7 as the area under the supply curve and is an expression of the actual value of labor used. The budget cost of military manpower, on the other hand, equals the average wage rate paid times the number of personnel. Recall that an AVF has to offer an average wage rate that equals the wage required to attract the last volunteer (i.e., the point where the demand curve for military personnel intersects the supply of military labor). This fact raises the issue of economic rent, which implies that some individuals will earn a higher wage than that for which they would be willing to serve voluntarily. From a public policy standpoint, Cooper (1977) questions how much economic rent would be appropriate because economic rent "does not reflect 'real' economic activity but instead merely a transfer payment from the general taxpaying public to those serving in the military." (Cooper, 1977, p. 91) Figure 5.7 shows how economic rent varies according to the proportion of the population base required to serve and how the MPR can affect the economic and budget cost of military manpower.



Source: Adapted from Richard V.L. Cooper, *Military Manpower and the All-Volunteer Force* (Santa Monica, CA: The RAND Cooperation, 1977), p. 92.

Figure 5.7. Military Participation Ratio and its Effect on Economic and Budget Cost

Consider two different situations. In the first, the demand for military personnel is given by the curve D1. To attract R* volunteers, the military must offer an average wage rate equal to W*. The area under the supply curve from 0-R* gives the economic cost here. The resulting budget costs (i.e., W* times R*) exceeds the actual value of labor used by the amount of economic rent, shown in the Figure 5.7 as the striped area. The demand for military personnel, in the second example, equals D2 and requires R' volunteers. The military has to offer an average wage equal to W', which leads to the fact that the budget costs, or the money taxpayers have to pay, exceed the actual value of military personnel used by the sum of the striped plus the shaded area.

Both examples show that the budget cost of military manpower will increase significantly if a larger proportion of the eligible pool base is required to serve, holding everything else constant. In contrast, the budget cost and, thus, the economic rent paid to persons actually serving can be reduced substantially by use of a military conscription system:

> Some of these "savings" are not really savings in the true meaning of the term since the economic, or real resource, cost of some of them exceeds the draft wage. At the same time, much of the savings...are in fact a reduction in the amount of economic rent paid [shown in Figure 1.9 as the shaded area]. That is, by implementing the draft the government reduces the amount of budget cost that is transfer payment from the general public to those serving in the military. (Cooper, 1977, p. 93)

The assumption, then, is that the MPR is negatively related to the successful implementation of an AVF. One can assume that a country's tendency to use conscription is higher when it maintains a relatively large military force compared to its population size. However, all-volunteer recruitment is probably more preferable for nations in which force requirements mean that a smaller fraction of the population must serve. Table 5.2 supports this theory. It shows that the MPR of countries that already have decided to implement an AVF lies between 0.2 percent in India and 2.9 percent in Jordan. Germany (0.8 percent) and China (0.3 percent), which still rely on conscription, seem to be exceptions. It should be mentioned that the classification of the Chinese armed forces as either a conscription or AVF system varies in the literature.

6. Conscript–Volunteer Pay Ratio

As previously noted, the decision to implement an AVF is related to the estimated budget costs of an all-volunteer system. On the most obvious level, volunteers are more expensive than conscripts. They are better paid than conscripts for their services; indeed conscripts, by definition, are "rendering some sort of forced labor extracted from them with little or negligible remuneration." (Haeckel, 1970, p. 18) The pay differences

Table 5.2. Military Participation Ratio (MPR) and Force Sizes in Selected Countries, 1996 – 1997

Country	Population (millions)	Armed Forces (active/reserves)	MPR %	System
USA	268	3,159,300	1.2	AVF
GB	59	592,200	1.0	AVF
Japan	126	282,300	0.2	AVF
Australia	19	91,050	0.5	AVF
Belgium	10	188,650	1.9	AVF
Canada	29	90,300	0.3	AVF
Netherlands	16	132,180	0.9	AVF
New Zealand	4	16,510	0.5	AVF
Jordan	5	139,050	2.9	AVF
Saudi Arabia	17	105,500	0.6	AVF
India	967	1,673,400	0.2	AVF
France	59	673,320	1.2	**
Germany	81	662,100	0.8	Draft
Austria	8	146,200	1.8	Draft
Switzerland	7	747,460	10.6	Draft
Denmark	5	103,350	1.9	Draft
Norway	4	267,600	6.1	Draft
Sweden	9	623,350	7.1	Draft
Finland	5	531,000	10.3	Draft
Spain	39	629,400	1.6	Draft
Portugal	10	270,200	2.74	Draft
Turkey	63	1,017,700	1.6	Draft
Greece	11	453,300	4.3	Draft
Russia	148	21,240,000	14.4	Draft
South Korea	46	5,172,000	11.3	Draft
China	1,221	4,040,000	0.3	Draft

Source: Adapted from The International Institute for Strategic Studies. *The Military Balance 1997/1998* (London: Oxford University Press, 1997).

** France has already decided to implement an AVF, but is still in the transition phase.

Between conscripts and volunteers in military systems with "mixed" force structure[44] vary considerably among nations. Haeckle (1970), for example, reports that, among army privates, the pay ratios, including monetary and nonmonetary benefits, between conscripts and volunteers are 1: 16 in France, 1: 13 in Denmark, and 1: 1.6 in Germany. The pay scales for conscripts and volunteers were almost identical in the U.S. three years before the implementation of an AVF.

The basic assumption in the previous section is that, holding everything else constant, a nation would be more inclined toward using conscription as the budget cost of a volunteer military increases. The expected increase in the manpower budget after changing the military system to an AVF, however, depends on two factors: first, on the wage differential between the volunteers and draftees and, second, on the number of vacancies that must be filled with volunteers once draft is abolished. The latter fact will be considered in the next chapter.

Figure 5.8 shows the effects of different conscript-volunteer pay ratios on the increase of the military budget after implementing an AVF. In a mixed force of size R', the military has to pay a wage rate WV to attract a number of V' volunteers. The remaining vacancies must be filled with a number of C' conscripts who receive a draft wage rate WC. The manpower cost of this mixed force is shown in Figure 5.8 as the shaded area.

Recall that the volunteer wage rate is defined as the wage that the military must offer in a competitive labor market to attract the desired quality and quantity of personnel That means that if the military wants to sustain an armed force of size R' it has to offer an average wage rate of W' to be able to replace the number of C' conscripts with volunteers. The resulting manpower budget is the area (W' * R'). The expected increase in the manpower budget can then be computed as follows: (W'-WV) * R' + (R'-V') * (WV-WC).

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[44] "Mixed" force structure in this model means that the active force of a nation consists of both, volunteers and conscripts.

The left-hand side of Figure 5.8 shows a high wage differential and, thus, a small pay ratio between conscripts and volunteers. In this example, it can be expected that the budget costs of military manpower will rise substantially after abolishing the draft. On the right-hand side of Figure 5.8, the wage differential between conscripts and volunteers is relatively small. In this situation, it can be expected that the military manpower budget of an AVF will only slightly increase, controlling for everything else.

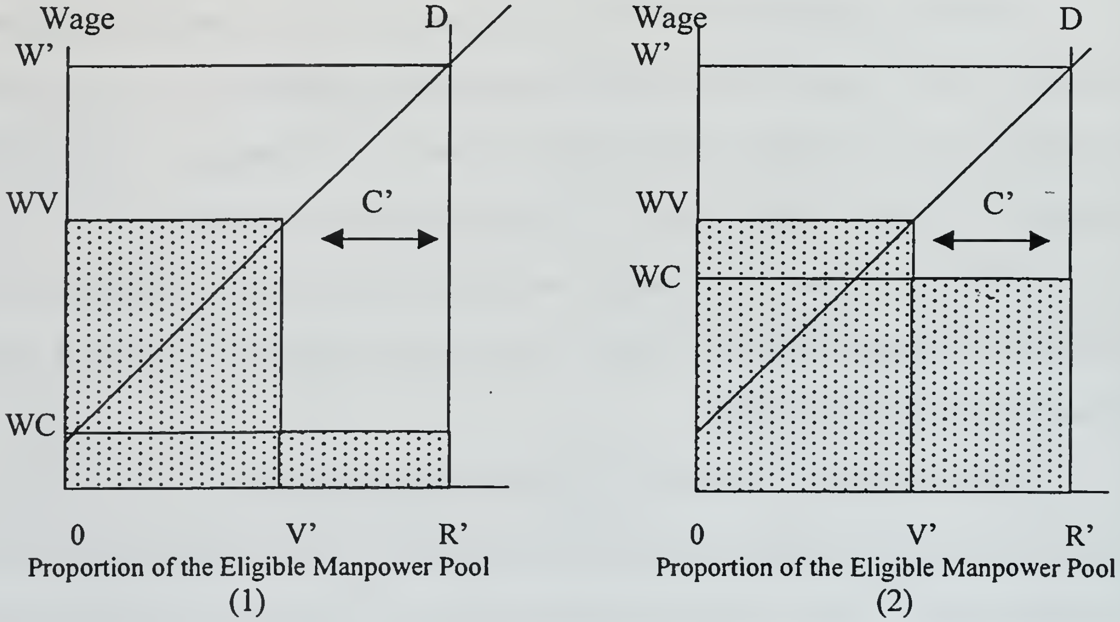
Wage
D
W'
WV
C'
WC
0
V'
R'
Proportion of the Eligible Manpower Pool
(1)
Wage
D
W'
WV
C'
WC
0
V'
R'
Proportion of the Eligible Manpower Pool
(2)

Figure 5.8. The Effect of the Conscript–Volunteer Pay-Ratio in a Mixed Force on the Increase in Manpower Budget after the Implementation of an AVF

One can conclude that, as the lower the pay ratio, the higher will be the budget increase of military manpower under an AVF. The higher the estimated costs of a policy, holding everything else constant, the less likely is the opportunity that this policy (i.e., the implementation of an AVF) will be supported by government, congress, and society.

The assumption is that the conscript–volunteer pay ratio is significant in our conceptual model and has a positive effect on the successful implementation of an AVF.

C. LEARNING AND EMPLOYMENT OPPORTUNITIES IN THE CIVILIAN LABOR MARKET

Economic factors, such as the unemployment rate or the civilian wage rate, are exogenous to military policy control. This implies that military defense planners can only recognize and react to trends in the civilian economy rather than take any sort of initiative. Because of this, Eitelberg (1996) emphasizes the importance of having accurate and current information, as well as a set of plans and management procedures to counteract manpower shortfalls.[45] In evaluating the learning experience in the U.S., he observes that changes in the economy--in the youth labor force in particular—can have a significant effect on the military's ability to recruit and retain highly qualified personnel. The assumption is that, as earning and employment opportunities in the civilian economy improve, the military finds it more difficult and, thus, more expensive (i.e., because of increasing recruiting and advertising efforts, and higher monetary and nonpecuniary incentives) to recruit the same quality and quantity of military personnel without the pressure of a draft.

1. Unemployment Rate

As mentioned above, an AVF has to compete in the labor market for its recruits. Military economists such as Gilroy (1990), Warner (1990), and Nelson (1986) assert that the recruiting process and, therefore, the success of an AVF depends largely upon both economic conditions and the level of resources at the military's disposal. Nelson (1986) sees the unemployment rate, in particular, as one of the basic and, perhaps, the most critical measurable economic factor that primary determines military enlistment. The "hollow force" of the late 1970s in the U.S., in his view, was the result of ignoring the effects of unemployment on enlistment supply and relying too much on the effects of military pay on recruiting. As Nelson (1986) states:

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[45] See Mark J. Eitelberg, "The All-Volunteer Force After Twenty Years,"_in Fredland et al., eds., *Professionals on the Frontline.*

> Because unemployment is so much more volatile than pay, even a relatively small elasticity can have demonstrably large effects. Overall unemployment rates, for example, doubled between 1979 and 1983. At an elasticity of only 0.2, which is consistent with the Gates Commission's approach, enlistment would increase by about 20 % due to unemployment changes reported above. (Bowman et al., 1986, p. 44)

Warner (1990) also observes a strong relationship between the civilian youth unemployment rate and the enlistment of high quality recruits and claims that recruiting becomes more successful under a low unemployment situation when recruiting conditions deteriorate and/or when recruiting resources are adequate.

In studying the effects of unemployment on high quality enlistment in the U.S. Armed Forces, Warner (1990) observes that the estimated effect of unemployment on high quality enlistments is positive, significant, and stable across the models. Table 5.3 indicates that each ten-percent increase in the civilian unemployment rate tends to change high-quality recruitment by 4.4 to 5.5 percent. The estimates for the Air Force are smaller, but still statistically significant. These trends are also supported by several other studies.[46] "For these other services, the decline in the civilian unemployment rate [e.g.,

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[46] See Nelson, "The Supply and Quality of First-Term Enlistees Under the All-Volunteer Force," in *The All-Volunteer Force After a Decade*, pp. 40-42.

Table 5.3. Estimated Percentage Changes in High-Quality Enlistments Due to a 10 Percent Increase in the Youth Unemployment Rate

	Army		Navy		USMC		Air Force	
Factor	A	B	A	B	A	B	A	B
Unemployment	5.5	4.5	4.8	4.4	4.8	4.4	2.0	1.4

Note: Model A includes a time trend, while model B does not.

Source: Adapted from John T. Warner. "Military Recruiting Programs During the 1980s: Their Success and Policy Issues." (Contemporary Policy Issues, Vol. VIII, October 1990), p. 57.

in the United States] from 9.5 percent in 1983 to 5.3 percent in 1988 is estimated to have reduced high quality enlistments by between 17 and 24 percent." (Warner, 1990, p. 56) Therefore, it can be expected that the unemployment variable is significant and positive in our conceptual model. This means that a country with a higher youth unemployment rate is more likely to successfully implement an AVF, holding everything else constant.

2. Gross National Product Per Capita

One of the previous conclusions was that a successful implementation of an AVF is negatively correlated to the size of the armed forces and, therefore, to the fraction of the society that must serve in the military. We assumed that any country's tendency to use an AVF is a function of the budget required to support an all-volunteer military. The budget required to support an AVF depends on the monetary and nonpecuniary incentives the military has to pay compete successfully against private employers for qualified young men and women. This implies that, if the military pays better than the civilian sector, and if the civilian sector is near the subsistence standard of living, then the military finds it easier to attract potential recruits Conversely, "[w]hen the standard of living is higher, the military finds it more difficult to recruit personnel without the pressure of the draft, not necessarily because military service is inherently unattractive, but because it must compete with many employers." (Cooper, 1977, p. 60) Cooper (1977) concludes that the poorer the nation and the smaller the force, the easier it is to fill vacancies at a given wage rate and, therefore, the less costly it is to implement an AVF.

Table 5.4 helps to explain much of the variation in manpower procurement policies used by different countries.

Although conscription remains the predominant method of manpower procurement worldwide, an increasing number of countries (e.g., Belgium and The Netherlands) decided some time ago or recently (e.g., France) to rely solely on all-volunteer recruitment. As Table 5.4 shows, none of the major advanced nations employing a volunteer military maintains a military force near the size (either in total number or in the MPR) of the United States. Belgium (1.9 percent) and Jordan (2.9 percent) seem to be exceptions in relation to their MPR and India (1,145,000) in relation to its force size. But, India and Jordan have a standard of living closer to a subsistence level, as measured by GNP per capita.

As Cohen observes, "the sheer bulk and poverty of their peasant population have ensured that enough men would be attracted to military service by the lure of glory, plunder, or, above, sheer security, to meet any national emergency." (Cohen, 1985, p.25) India, for example, was able to raise an army of over two-and-a-half-million people by voluntary enlistment during the Second World War. (Cohen, 1985)

Table 5.4. **Gross-National-Product (GNP) per Capita and Force Sizes in Selected Countries with All–Volunteer Armed Forces, 1996-1997**

Country	GNP 1996 US$ (tr.)	GNP per Capita US $	Armed Forces Active	MPR %
USA	7.6	27,600	1,447,600	1.2
GB	1.2	19,600	213,800	1.0
Japan	4.6	23,200	235,600	0.2
Australia	0.351	20,000	57,400	0.5
Belgium	0.262	21,900	44,450	1.9
Canada	0.569	22,100	61,600	0.3
Netherlands	0.352	20,600	57,180	0.9
New Zealand	0.054	16,800	9,550	0.5
Jordan	0.007	4,500	104,050	2.9
Saudi Arabia	0.136	10,200	105,500	0.6
India	0.371	1,500	1,145,000	0.2

Source: Adapted from The International Institute for Strategic Studies. *The Military Balance 1997/1998.* (London: Oxford University Press, 1997).

Haltiner (1997) finds support for the hypothesis that the mass army format in Western European nations and, thus, a country's tendency of using conscription, tends to decline with a country's growing affluence. This finding is based on the assumption that the "socio-economic" modernization and the high living standard in highly industrialized modern societies tends to favor the trend toward volunteer systems. Haltiner found only a small correlation between these variables and concluded that geo-strategic changes such as the end of the Cold War and new missions, are far more important causes of the "noted accelerated recent change of force formats than the economic growth in Western societies." (Haltiner, 1997, p. 14)

It can, therefore, be expected that economic wealth or the living standard of a society has a negative effect on the successful implementation of an AVF. But, the effect will diminish and become almost insignificant by adding other variables, particularly, political and social ones.

D. CHAPTER SUMMARY

Chapter V introduces economic variables and their estimated effects on the successful implementation of an AVF. The assumption examined is that policy makers are influenced mainly by the expected budget cost of military manpower when considering a change to an all-volunteer recruiting system.

As noted earlier, the policy problem centers on how much economic rent is desirable, though it is clear that there is no single or “right” solution to this problem. But, there can be dislocation when the amount of economic rent is very large, as it will almost be the case in an AVF, when a large fraction of the population base is required to serve. (Cooper, 1977) This explains why conscription is probably preferred when a country maintains a very large military force relative to its population base. An AVF, on the other hand, is probably preferable for countries with low MPRs and low MPCRs and can be used to support a much larger military capability than appear at first.

The chapter also reveals that military defense planners can only recognize and react to trends in the civilian economy rather than take the initiative. Therefore, the successful implementation of an AVF relies on constant tracking and analysis of economic trends to find the appropriate methods to counteract manpower shortfalls. The need for constant vigilance on the part of senior military and political leaders is required, especially during the transition from a draft to an AVF.

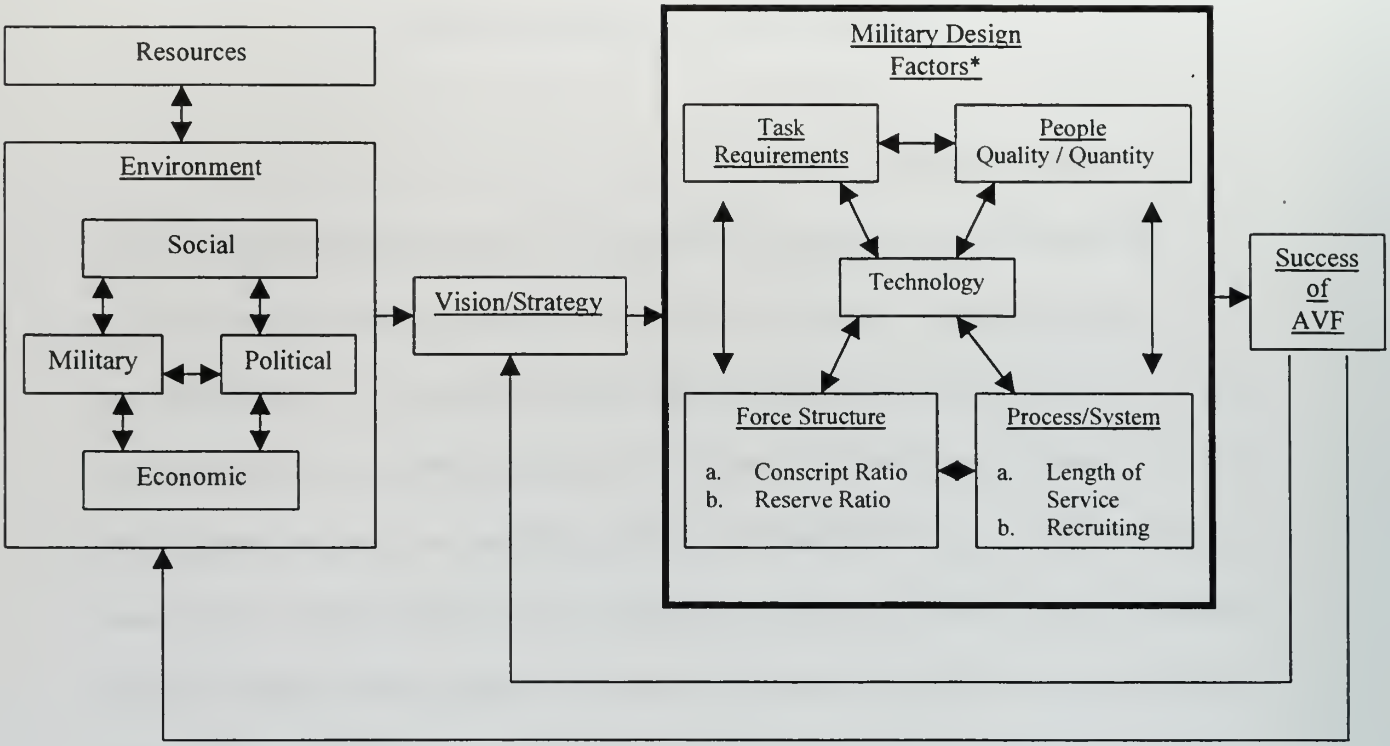
The discussion also shows the importance of considering social and political factors in the policy analysis process. In particular, the equity issue and questions about who carries the burden of conscription have growing influence over a country's decision to remove the draft. Cohen (1985), therefore, claims that the decision between an AVF and the draft in most countries depends more on political, social, and military circumstances than on economic considerations. He observes that most countries adopt some form of conscription, especially if they face the prospect of an invasion by a hostile neighbor across land borders. Thus, Cohen concludes that perhaps the "best predictors of a country's system of military service are the length of its land borders with potentially hostile neighbors and the size of its population relative to that of its neighbors." (Cohen, 1985, p. 25) A GAO study (1988), which investigates potential impacts and other issues on the military draft system in the U.S., tends to support Cohen's assumption. GAO observes that, while a majority of young Americans favor bringing back the draft if war breaks out, only 25 percent support a peacetime draft. (GAO, 1988) It can be seen, then, that "the organizational format of a recruiting system for the armed forces, conscription or all-volunteer forces, is a synthesis, and a compromise, between defense requirements stemming from the external geostrategic situation and the domestic price a nation accepts to pay in terms of individual freedom, budget, for its security at a particular time in moment." (Bonnardot, 1997, p. 3) Although economic factors might not be the initiators for a change from a draft to an all-volunteer military, they are clearly significant enough to ensure the future success of an AVF.

VI. MILITARY DESIGN FACTORS

A. INTRODUCTION

The initial issue in the debate of whether the U.S. military should remove the draft or not was, according to Cooper (1977), one of determining what it would cost to implement and sustain an all-volunteer force of the desired size and composition and whether it would be worthwhile to bear these costs. In the later years of the AVF, this issue has become one of assessing how well the military has fared in meeting their quantitative and qualitative recruiting objectives. The feasibility issue thus reduces primarily to one of military manpower procurement. The key problem defense planners are facing is two-sided. First, defense planners have to locate and try to control factors, which might influence the supply of military labor and, therefore, the cost of an AVF, and, second, they have to define their demand for the right mix of quality personnel and technology to ensure an efficient use of their resources.

Chapter VI introduces several variables that determine the structure and functionality of the armed forces, the so-called military design factors and their estimated effects on the successful implementation of an AVF. Chapter II mentions recruiting as a part of the military design factor component. Recruiting is not part of Chapter VI because it does not directly represent a condition that favors the decision to remove the draft, but more a method to fill vacancies with quality personnel. Figure 6.1 shows the role of military design factors in the conceptual model of military organization.



Source: Adapted from David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior" in David A. Kolb, Irwin M. Rubin and Joyce S. Osland. *The Organizational Behavior Reader*. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1991)

* Adapted from Jay R. Galbraith. *Organization Design*. (Philippines: Addison-Wesley Publishing Company, Inc., 1977), p. 30.

Figure 6.1. Military Design Factors

B. LENGTH OF MILITARY SERVICE

Although the analysis so far has focused primarily upon labor stocks, i.e., the numbers of personnel employed in the military, the method of military manpower procurement has an even stronger effect on labor flows. The relationship between personnel turnover and the method of military manpower procurement is, in a sense, obvious. That is, personnel turnover rates are inversely related to the average length of service, and the average length for personnel in the armed forces varies according to the method of recruiting. Thus, armed forces that rely on conscription tend to have higher personnel turnover rates than do all-volunteer military services because the use of conscription tends to reduce the average length of service. But, conscription systems themselves vary, in that those with shorter tours tend to have higher rates of personnel turnover. As Table 6.1 shows, military service obligations vary in different countries between six months (Austria) and 48 months (China). Therefore, one can conclude that personnel turnover rates are a function not only of whether conscription is used, but also of the length of obligated military service in a nation.

According to Cooper (1977), personnel turnover is not necessarily undesirable. Sometimes, as the White Paper on Security of the Federal Republic of Germany (1994) states, turnover ensures that the military is able to fall back on a cross section of young men's and women's abilities, skills, and professional qualifications. Personnel turnover (i.e., those that are induced by the length of service) must, therefore, be evaluated in the context of its effects on defense capabilities and costs, especially given that reductions in personnel turnover rates are not costless, either.

As mentioned earlier, military capability is a function of the amount of labor input to the defense mission. Personnel turnover affects military capability, according to Cooper (1977), in three important ways:

1. "Down Time"

"Down time" results from accessions, training, transit, etc., for new recruits. This implies that fewer productive "man-years" are realized from a given number of recruits when personnel turnover rates are high. Therefore, the assumption is that, if the average length of military service (LS) declines, the personnel turnover rate (PTR) increases. This leads to the result that the ratio of "productive" time (PT) to "unproductive" time

Table 6.1. Length of Compulsory Military Service in Selected Countries, 1996-1997

Nation	Length of Military Service
France	10 months, can be voluntarily expanded to 12-24 months
Germany	10 months, can be voluntarily expanded to 12-23 months
Austria	7–8 months (depends on refresher training or not)
Denmark	4–12 months (up to 24 months in certain ranks)
Norway	12 months, plus 4–5 months refresher training periods
Sweden	Army, Navy 7–15 months, Air Force 8–12 months
Finland	8–11 months (11 months for officers, NCO, and Soldiers with special duty)
Spain	9 months
Portugal	Army 4–8 months, Navy and Air Force 4-18 months
Turkey	18 months
Greece	Army up to 19 months, Navy and Air Force up to 21 months
Russia	18-24 months
South Korea	Army 26 months, Navy and Air Force 30 months
China	Army 36 months, Navy and Air Force 48 months

Source: Adapted from The International Institute for Strategic Studies, *The Military Balance 1997/1998.* (London: Oxford University Press., 1997).

(UPT) of draftees decreases, holding everything else constant. This relationship can be shown in the following flow diagram:

$$\downarrow \text{(LS)} \rightarrow \uparrow \text{(PTR)} \rightarrow \downarrow \text{(PT/UPT)}$$

2. Recruits versus Training Support

The assumption is that each person-year of conscription training requires a person-year of training support. Therefore, if the length of military service decreases, the number of recruits (R) increases, holding everything else constant. An increase in the number of recruits requires more training hours per unit (T) and, thus, the need for more training support (TS) (i.e., instructors, support staff, etc.). This implies that higher personnel turnover means that more otherwise productive personnel are diverted from defense missions to the support of military training, which can result in a decline in military readiness (MR) and capability. The following flow diagram shows this relationship:

$$\downarrow \mathbf{(LS)} \rightarrow \uparrow \mathbf{(R)} \rightarrow \uparrow \mathbf{(T)} \rightarrow \uparrow \mathbf{(TS)} \rightarrow \downarrow \mathbf{(MR)}$$

3. Job Performance

It can be expected that less-experienced personnel cannot perform many jobs as well as more-experienced ones, especially in an age of high technology. Thus, defense planners face the questions about the degree to which less-experienced soldiers can substitute for more-experienced soldiers, and whether this substitution effect influences military capability. Cooper (1977) assumes that very large turnover rates can degrade overall force capability significantly. Thus, a decline in the length of military service implies a decrease of expertise (E) in the force and reduces military capability (MC) significantly, holding everything else constant. This relationship can be described by the following flow diagram:

$$\downarrow \mathbf{(LS)} \rightarrow \downarrow \mathbf{(E)} \rightarrow \downarrow \mathbf{(MC)}$$

In summary, one can say that, because conscripted forces generally have shorter tours of duty than of an AVF, they tend to require more personnel (i.e., conscripts and professionals) to ensure the same level of manpower productivity, holding everything else constant. Further, among conscripted forces, those with much shorter times of military service generally tend to require far more personnel than those with longer periods of obligated service to achieve the same level of military capability. This indicates that conscription is a very inefficient military system for maintaining a standing force at the same performance and readiness level when the length of conscription is very short, especially in modern and technologically sophisticated armed forces.

Cooper writes: "In fact, not only do very short conscription tours increase the economic costs associated with maintaining a military labor force (since they increase the ratio of total personnel required to the amount of productive labor input), they can also increase budget costs, since so many more personnel are required." (Cooper, 1977, p. 80) A March 1988 report from the General Accounting Office (GAO) supports Cooper's thesis. In studying the potential impacts on a probable draft system in the U.S., the GAO concludes that if the U.S. government reinstated the draft, "long-term budgetary savings would be $7.8 billion a year in 1987 dollars." (GAO, 1988, p. 24) The report assumed that draftees would serve for two years, that the military would stay the same size, and that pay for all first-term personnel would be cut by half for the first two years of service. But, when GAO tried to estimate the costs of switching to a conscript system with approximately the same effectiveness as the AVF in 1988, the picture changed substantially. As GAO reports:

> The estimated budgetary cost savings associated with the draft diminish and eventually disappear.... Our analysis indicates that if force effectiveness is measured by the number of personnel with 12 months of service, the draft force results in net long-term budgetary savings of about $4 billion. But if 24 months are required to become fully effective, the volunteer force is less expensive than the draft by about $2.6 billion. (GAO, 1988, p. 34)

It can be assumed that the length of military service will negatively affect the successful change from conscription to an all-volunteer armed force, holding everything else constant. This means that it is more likely that the decision to implement an AVF in countries with very short terms of service (e.g., Portugal, Spain, and Austria) will find more political and public acceptance, especially in light of economic considerations, than in countries with very long terms of obligation (e.g., China and South Korea).

A further reduction of the length of military service, like that in modern Western Nations, can lead to the following results. Assuming a constant military budget and military technology, one result would be a decrease in military capability and, therefore, a loss of prestige and public interest. National service would be perceived more and more as a means to solve social problems through civil tasks rather than as a mandatory way to defend a nation's territory. (Bonnardot, 1997) The second result would be an inefficient use of resources (i.e., military personnel and budget) if a nation intends to maintain the same level of military readiness and performance.

C. FORCE STRUCTURE

Another significant factor affecting the successful implementation of an AVF is the organizational structure of the military organization. The structure of a military draft system is determined primarily by the Ration between conscripts and volunteers in the services and by the role of reserve forces in the military's "Total Force" policy.

1. Conscript Ratio

The Conscript Ratio (CR) is defined as the percentage of active members of a nation's armed forces who are draftees. Haltiner (1997) sees the CR as the most significant indicator of the organizational format of a nation's armed forces because it provides information about the degree to which recruits join voluntarily or are conscripted. The inclusion of the CR variable in our conceptual model is based on two assumptions. First, the percentage of conscripts that must be replaced by volunteers can affects the manpower budget of an AVF considerably. Second, there is a correlation between the percentage of conscripts in the armed forces and the number of individuals drafted out of the eligible pool. The latter relationship has a significant effect on the previously mentioned equity issue—that is, sharing the burden of the conscription tax. Table 6.2 shows the CR in selected countries along with the intention of these countries to further reduce the ratio.

As seen in Table 6.2, a nation's armed forces can be categorized according to three different "types." Haltiner (1997) distinguishes between three different types of conscripted forces:

a. Type I (Pseudo Conscript Forces)

This category is comprised of military organizations in which the fraction of conscripts is below 50 percent of the total active armed forces. Although the majority of military personnel are volunteers, Type I armed forces rely principally on universal

Table 6.2. **Conscript Ratio (CR), Force Format, Military Participation Conscript Ratio (MPCR), and Intention to Reduce CR, by Selected Country, 1996-1997**

Nation	Conscript Ratio %	Force Format (a) (Type I - III)	MPCR (b) %	Intention to Further Reduction of the CR (size)*
Switzerland	99.0	Type III	46.36	Unclear
France	41.0	Type I	2.46	Yes (by 100%)
Germany	44.0	Type I	1.81	Yes
Austria	36.0	Type I	1.86	Unclear
Denmark	24.0	Type I	1.38	No
Norway	59.0	Type II	4.03	Yes (by 25%)
Sweden	73.0	Type III	4.34	Yes (by 10%)
Finland	76.0	Type III	4.58	No
Spain	55.0	Type II	2.20	Yes (by 54%)
Portugal	22.0	Type I	1.05	Yes
Turkey	83.0	Type III	5.91	No
Greece	73.0	Type III	9.85	No
Russia	31.0	Type I	2.42	Yes
South Korea	24.0	Type I	2.45	Yes
China	45.0	Type I	0.73	Unclear

Source: Adapted from The International Institute for Strategic Studies, *The Military Balance 1997/1998.* (London: Oxford University Press, 1997).

* See Haltiner, Karl W. 1997. *The Defined End of the Mass Army in Western Europe*. Zurich, Switzerland: Department of Military Science Swiss Military College at the Swiss Federal Institute of Technology (ETH).

(a) Haltiner (1997) distinguishes between three different types of conscripted forces: First, Type I , military organizations with a CR below 50 percent. Second, Type II, military organizations with a CR conscription to fill their vacancies. They seem to exploit their conscript manpower to a very low extent and use the draft mainly as personnel reservoir to supplement their mostly-volunteer forces. Thus, a Type I armed force exhibits essentially more the character of an all-volunteer military than that of a conscript army. As Table 7 shows, the armed forces of France, Germany, Austria, Denmark, Portugal, Russia, South Korea, and China pass for Pseudo Conscript Forces.

Haltiner (1997) also reports that the recruiting methods of Type I armed forces are more selective than those of universal conscription. He assumes, therefore, that the decision to abolish the draft in countries with Type I armed forces finds more political and public support than in countries with a higher CR, under the aspect of military burden equality.

b. Type II (Soft-Core Conscript Forces)

Military organizations in which the percentage of conscripts fall between 50 percent and 67 percent are called Soft-Core Conscript Forces. Haltiner (1997) observes that, in Western Europe, nations with Type II armed forces tend to have lower MPCRs and have started practicing conscription more selectively rather than universally. He believes, therefore, that universal conscription will become a political issue in these nations, with discussions focusing on how to distribute the burden of military service most equitably.

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between 50 percent and 67 percent. Finally, Type III, military organizations in which a CR above 67 percent.

(b) Military Participation Ratio (MPCR) is defined as the percentage of drafted individuals in a particular age group within a national population.

c. *Type III (Hard-Core Conscript Forces)*

This category contains all military organizations with a CR above 67 percent and an absolute and high dominance of conscripts in the force structure. Nations with Type III armed forces tend to have higher MPCRs and use universal rather than selective conscription. A higher MPCR also implies that the burden of the conscription tax is distributed over a larger percentage of the population; and the society of a Type III nation will tend to be more supportive of its draft system.

It can be expected that the "Conscription Ratio" is significant and positively related to the successful implementation of an AVF.

2. The Reserve Ratio

Readiness of military organizations cannot be judged without taking account of the reserves. In nations that base their foreign and national security policies on the so-called "Total Force"[47] concept, the reserves are vital to ensuring the sustainability and operational readiness of the armed forces. Owing to the fact that the main defense forces are heavily dependent upon mobilization, reservists are needed for virtually all assignments, including the command of units and formations and, to a higher degree than in the past, the operation of primary weapons. (White Paper, 1994) Reserve forces represent, therefore, an important and integral part of military planning. As Marshall writes:

> Today, many reserve units have no counterpart in the active-duty forces [in the United States]. These include 'heavy' non-attack units, infantry

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[47] The "Total Armed Forces" equals the sum of the active forces and the number of people in the reserve forces that can be mobilized when political or military circumstances require it. In the U.S., the "Total Force" actually includes four elements: the active-duty military, the Reserves, civilian employees of the government, and defense contractor.

> scout groups and railroad units. And reserves are not limited to support roles. The Army National Guard, for example, represents more than 40 percent of the Army's total combat manpower. (Editorial Research Report No. 2, 1991, p. 25)

The role of reserve forces is getting even more important because military organizations generally reduce the number of active-duty military personnel after the implementation of an AVF. This fact implies that active forces in an all-volunteer system are not numerous enough to fulfill all the required qualifications in operations. The Gates Commission (1970) realized that the reserve forces would take on more importance in an all-volunteer environment due to the smaller size of the active force and the diminishing capability, without the draft, to rapidly expand the active force during mobilization. Therefore, the Commission recognized "from its first meeting the need for special attention to the problem of the reserves forces [in the United States]." (Gates Report, 1970, p. 95) This was especially true because, as surveys in the late 1960s had indicated, approximately 75 percent of the enlisted personnel fulfilling their initial six-year military service obligation in the in the U.S. reserve forces were there only due to prior service in the U.S. armed forces as draftees. According to Cooper (1977), perhaps the most serious problem to emerge from the AVF experience in the U.S. is the reserve forces' difficulty in attracting a sufficient quantity of recruits with the necessary levels of quality. His assumption is based on the fact that the U.S. reserve forces had experienced considerable recruiting problems in the post-draft period. As Cooper writes:

> They [the Reserve Forces] have not been able to attract the desired numbers of NPS [Non-Prior-Service] male recruits, and as a result, reserve enlisted strength has declined (in some cases substantially) relative to those of the early 1970s. Moreover, the quality of NPS male recruits, as

> measured by education attainment and mental aptitude, likewise seems to have declined. (Cooper, 1977, p. 156)

Consequently, must ask: can an AVF sustain a reserve component that will fulfill all the qualitative and quantitative requirements once fulfilled through the draft? To help answer this question, one has to consider the so-called Reserve Ratio (RR), which is defined as the percentage of reservists in the "Total Forces." Table 6.3 shows the calculated RR for several Western European countries that have compulsory military service. As Table 6.3 indicates, the proportion of the reserves in a force structure can vary considerably, from 37 percent in Turkey to more than 99 percent in Switzerland. This means that in countries with a lower RR (such as Turkey, Germany, and France) rely more heavily on the active component than do countries with a higher RR (such as Switzerland and Finland).

Thus, one can expect that the decision to remove the draft has significant consequences on the structure, quantity, and quality of the reserve force--a fact that can be, according to Brinkerhoff and Grissmer (1986), the weak link in the total force strategy of a nation under all-volunteer conditions.[48]

Although the RR provides a good idea about the importance of the reserve component in the military force structure, the ratio cannot establish a link between the recruiting policies in the active and reserve forces. However, this connection is essential for predicting or estimating the effects of removing the draft on the quality and quantity of reserve forces. Therefore, it is necessary to consider, in addition to the RR, the

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[48] See John R. Brinkerhoff and David W. Grissmer, "The Reserve Forces in An All-Volunteer Environment," in Bowman et al., eds., *The All-Volunteer Force After A Decade.*

Table 6.3. The Percentage of Reserve Forces in the Total Force Structure (Reserve Ratio) in Western European Conscript Forces, 1996-1997

Nation	Total Force	Reserve	Reserve Ratio %
Switzerland	360,760	357,460	99
France	673,320	292,500	43
Germany	662,100	315,000	48
Austria	146,200	100,700	69
Denmark	103,350	70,450	68
Norway	267,600	234,000	87
Sweden	623,350	570,000	91
Finland	531,000	500,000	94
Spain	629,400	431,900	69
Portugal	270,200	210,900	78
Turkey	1,017,700	378,700	37
Greece	453,300	291,000	64
Italy	809,150	484,000	60

Source: Adapted from The International Institute for Strategic Studies, *The Military Balance 1997/1998.* (London: Oxford University Press, 1997).

average conscript ratio (ACR) of a nation. The ACR is defined as the percentage of conscripts in the active forces over a specific period of time. The advantage of using the ACR instead of the CR is that the latter provides information only for a specific point in time, whereas the ACR controls for long-term trends in the military organization.

As Bonnardot (1997) states, in countries with compulsory military service, the reserve concept is closely related to conscription because of the fact that reserve forces are manned mainly by former draftees. One can thus expect, holding everything else constant, that nations with “Soft- or Hard-Core Conscript” forces are more likely than nations with “Pseudo Conscript” forces to recruit their reserve forces out of the pool of draftees. At the same time, one can assume that Type I military organizations are more likely than Type II or III armed forces to base their “Total Force Structure” on active units. Therefore, one can expect a smaller effect on the military capability of their “Total Forces” if the draft is abolished.

It can be assumed that the RR is significant and has a negative effect on the successful implementation of an AVF. This means that, when the proportion of reserve forces in the “Total Force” structure is large, the role of the reserve in the foreign and national security policy of a country is also large. It is important to note that the influence of the RR variable on the successful implementation of an AVF would be biased and overestimated by omitting the ACR.

D. MILITARY TECHNOLOGY

As previously noted, the demand for labor is a function of technology. The assumption is that the level of technology used in an organization affects its demand for manpower significantly. The direction of the estimated effect is twofold. First, the effect will be negative if labor and technology are substitutes in the production process, and an organization can reduce its manpower (i.e., less-skilled employees) drastically by introducing a higher level of technology. And, second, the sign of the estimator is positive if two inputs (i.e., technology and high-quality personnel) are complements in the production process and, thus, both must be used together. In this case, an increased use of technology implies the need to increase the number of skillful, well-trained, and experienced personnel to maximize the level of productivity. In structuring the military system, defense planners must, therefore, evaluate how the use of highly sophisticated combat systems will influence the demand for quality and quantity of military personnel. The "right" mix between technology and military manpower (i.e., quality and quantity) is essential to using all defense inputs efficiently and to maximizing force capability and readiness.

The relationship between technology and work has been a subject of increasing attention over the years. According to Martin Binkin (1994), the armed forces have, in recent years, devoted considerable resources to predicting the impact of new technologies on skill levels. One issue discussed is whether changes in technology foster a need for a broader or a narrower variety of skills or for a higher or a lower average skill level.[49] Many high-tech supporters have pledged that the introduction of "smart" systems would lead to the sufficient substitution of capital for labor, enabling a given task to be performed with fewer and less-skilled people. Binkin (1994), however, cites historical evidence, which indicates a variety of chronic problems with the reliability and maintainability of new weapon systems. As he notes, the upshot of this evidence is that new weapon systems will demand even more skillful operators, especially if the capabilities of new systems are to be fully exploited. Many military leaders support this point, as well. If a military organization is to realize a full return on its substantial investment in technology, a better match between humans and machines will have to be fashioned. Binkin (1994) sees two ways to approach this issue. First, machines could be designed to fit the "man" by making them more reliable and easier to operate and maintain; and, second, military personnel could become more technologically proficient through improvements in training technologies and techniques.[50] Steven Leeven (1983) supports the latter approach. In his framework explaining soldier's proficiency, he emphasizes the importance of considering the effects of the so-called personal-match factor on military capability and, therefore, the need to relate personnel potential to the weapon systems a force will operate.[51]

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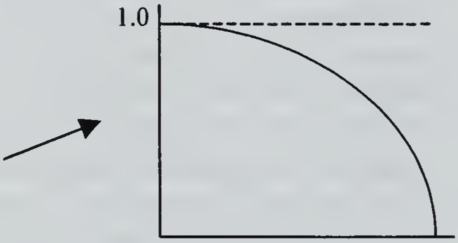
[49] See Martin Binkin, "Military Technology and Army Manpower" in Mark J. Eitelberg and Steve L. Mehay, eds., *Marching Toward the 21st Century.*

Figure 6.2 shows a conceptual model of the person-machine match factor as a function of raw material, training, experience, and equipment operability.

$$\frac{\text{EQUIPMENT OPERABILITY}}{\text{(RAW MATERIAL) x (TRAINING) x (EXPERIENCE)}}$$



Source: Adapted from Steven A. Leveen, *A Technique for Assessing Personnel Potential of Ground Forces: Methodology and Trial Assessments* (Arlington, VA: The Analytic Science Corporation, 1983), p. 4-3.

Figure 6.2. The Person-Machine Match Function

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[50] Ibid.

[51] Leveen (1983) defines "personnel potential" as the potential of military personnel to exploit fully the capabilities of their equipment in operational situations.

Leveen's idea behind constructing the person-match function in this way is to conform to the consensus that, when the skills of the military's personnel are relatively well-matched to the difficulty of the weapon systems they are operating, the operators usually extract most of the capability from those systems. A nation with such a match factor would find itself high up on the schematic curve, shown in Figure 6.2. Conversely, when a nation's military personnel fall short in their basic skills (education, training, and experience) with respect to the demands of their weapon systems, they begin to fall down the curve. At a certain point, where the demands of the systems far exceed the capabilities of the personnel, the person-machine match factor can fall to almost zero. (Leveen, 1983)

Based on Leveen's theory, one can expect that the percentage of conscripts in the active forces will decrease with an increasing degree of technical complexity of combat systems, because conscripts serving on a short-term basis no longer meet the requirements regarding permanence in training and readiness for duty. The assumption is that the effect of the level of military technology on the successful implementation of an AVF is significant and positive. This means that the probability that a nation will change its military system from a draft to an AVF increases with the increasing use of modern combat systems. Haltiner (1997) also observes that the conscription format of a military system is more dominant in military organizations whose level of military technology is relatively low.

The positive effect will further be supported by the fact that highly technologically developed armed forces can offer more attractive jobs, especially for the younger generations in modern societies, and consequently find it easier to attract high-quality applicants.

E. CHAPTER SUMMARY

This chapter introduces the so-called "Military Design Factors" and their estimated effects on the successful implementation of an AVF. As previously noted and shown in Figure 6.1, this component, determined mainly by the vision and strategy of defense-planners, is a reaction to changes in external conditions. Organizations that want to survive and prosper must respond to these changes to use resources efficiently and to keep the level of productivity at its maximum.

After the end of the Cold War and a changing political and social environment, the military faces basically the same issues. This situation results in the discussion in many nations whether they should remove the draft and rely solely on all-volunteer recruitment. The answer to this question depends largely on an assessment of whether or not the existing system (i.e., the draft) meets the military's current and future needs. In this decision- making process, defense planners have to consider following questions:

1. What are the task requirements of the military organization, and what must people do to perform effectively, given its context?
2. What are the human resources, and are they adequate--in terms of intellectual capability, military training, and expertise--to respond to current and future challenges?
3. What is the basic military technology, and is it compatible with other design factors, especially with the men and women who have to operate and maintain it?
4. Does the existing military force structure deal with key interdependencies, as shown in Figure 7.1, and the required need for integration?

This chapter has estimated the effects of different "Military Design Factors" in the light of these key issues, mentioned above. The analysis indicates that all of the "Military Design Factors" are important considerations in a nation's decision of whether to remove a draft. The research finds that a reduction in the length of military service, for example, has a negative influence on the efficiency of a conscription system because of higher turnover rates, a decrease in quality training and expertise, and, therefore, a decline in military capability.

The "Conscription Ratio" is expected to have a positive effect on the decision to implement an AVF for two reasons. First, armed forces with a lower CR already base their force structure mainly on volunteers and, therefore, face fewer uncertainties and restrictions on readiness and capabilities than do "Pseudo" or "Hard-Core Conscript" forces; and further, the CR in almost all nations is highly related with the "Military Participation Conscript Ratio." This means that a low CR implies a low MPCR, a relationship that results in the burden of the conscription tax being levied on only a small fraction of the population.

The discussion also shows the importance of considering the "Reserve Ratio," especially in combination with the "Average Conscript Ratio." One can anticipate that the RR has a negative influence on the decision to remove the draft because of the fact that military conscript systems tend to recruit their reserve forces out of the pool of former draftees. Therefore, the removal of the draft has significant effects on the recruiting policies of the reserve forces, as well.

Finally, Chapter VI emphasizes the need to consider the positive effect of the level of military technology on the decision to end conscription. Based on Leveen's

(1983) framework of soldiers proficiency and, in particular, on his "person-machine match" function, one can be expect the percentage of conscripts in the active forces to decrease as combat systems become more technologically complex. However, from a personnel perspective, increased technology is a double-edged sword, as Maxwell R. Thurman (1986) points out. On one hand, young men and women perceive it as a drawing card for recruitment. At the same time, technology and the sophistication it brings demand smarter soldiers.[52]

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[52] See Maxwell R. Thurman, "Sustaining the All-Volunteer Force 1983-1992: The Second Decade," in Bowman et al., eds., *The All-Volunteer Force After a Decade.*

VII. SUMMARY AND CONCLUSIONS

The end of the Cold War and the demise of the Warsaw Pact and the Soviet Union has raised the question in a number of nations, especially in Western Europe, over the continuing need for compulsory military service. A decline in public and political acceptance of the so-called “massarmies,” combined with a decreasing willingness of people to carry the burden of defense, exerts enormous pressure on defense-planners to consider alternatives to their current military systems, particularly in nations with compulsory military service.

According to Bonnardot (1997), new strategies and political circumstances affect many related areas, such as military budget cuts and the reduction in military manpower levels. This implies the need to reorganize military organizations. The concept of the armed forces is decisively determined by what capabilities the military must have in the future as a tool of a nation’s foreign and security policies. Policy makers have to consider, however, that forced military service presents the most extreme demand a community can impose on its members--the requirement, as Cohen (1985) notes, that they prepare to die on its behalf.

This paper develops a conceptual model that shows the estimated effects of economic, social, political, and military factors on the successful implementation of an AVF. The model, shown in Figure 7.1, demonstrates the open-system character of the military organization and highlights the close interrelationship between social, military, economic, and political components in its environment.

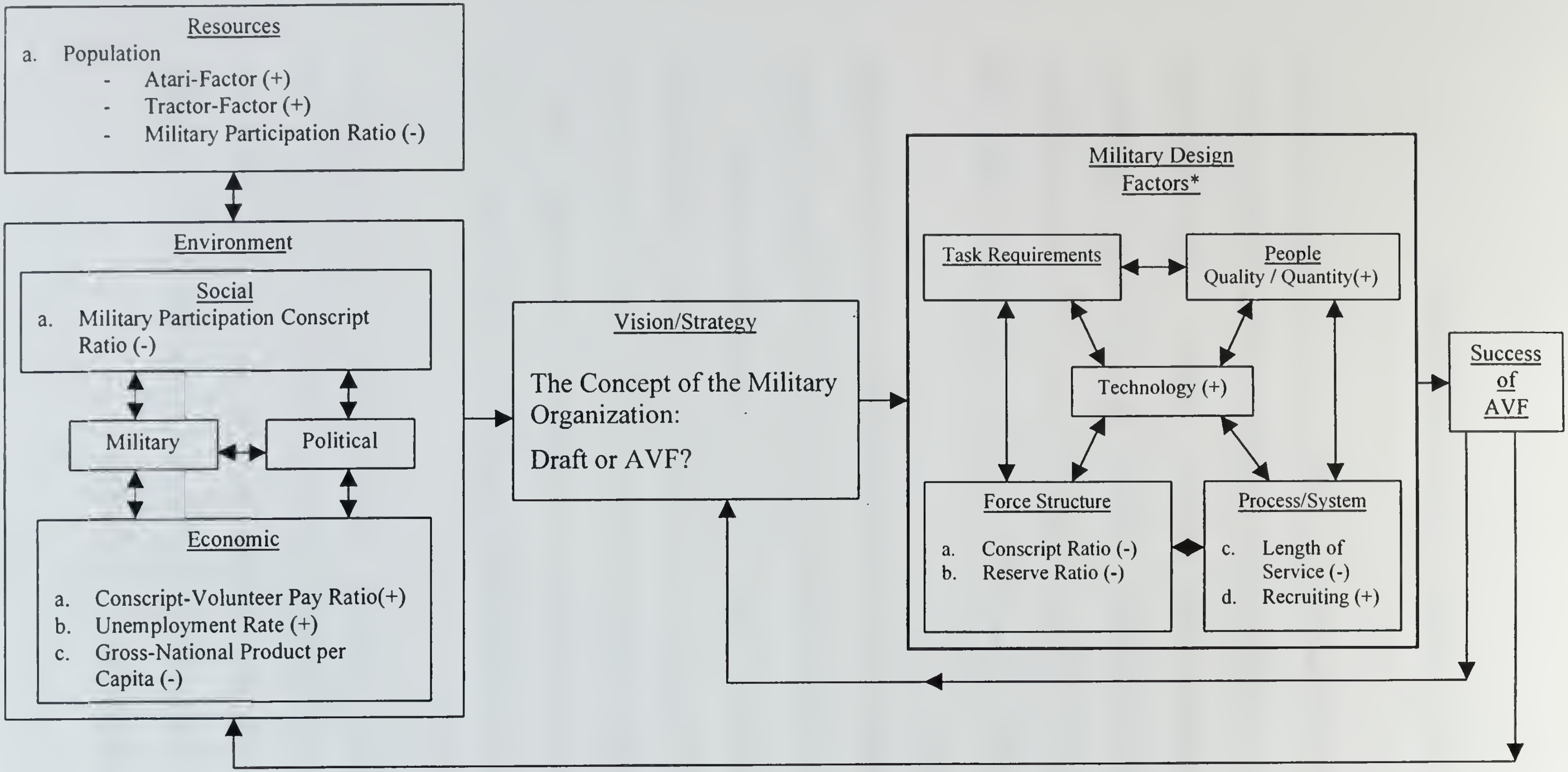

Figure 7.1. **Conceptual Model of the Military Organization and the Estimated Effects of Several Variables on the Successful Implementation of an AVF**

Source: Adapted from David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior" in David A. Kolb, Irwin M. Rubin and Joyce S. Osland, eds., *The Organizational Behavior Reader* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1991).

* Adapted from Jay R. Galbraith, *Organization Design* (Philippines: Addison-Wesley Publishing Company, Inc., 1977), p. 30.

The difficulty in developing such a conceptual model arises from the fact that it is not easy to find reliable measure of military output, especially in peacetime. Figure 7.1 shows a "feedback loop" between the output of the military and its environment. This implies, as discussed in Chapter IV, that the success of the military organization is based on four pillars: first, social acceptance and integration; second, economic effectiveness and efficiency; third, military capability and readiness; and, finally, military credibility with Congress, administration, the people and, also a nation's enemies or potential enemies.

An all-volunteer military must, furthermore, be evaluated on its ability to recruit the desired number and quality of personnel. This fact is becoming even more important because, once compulsory military service is abolished, the armed forces must compete with other employers and educational institutions for quality personnel. Effective and efficient management of military manpower in an all-volunteer system is, thus, based on an understanding of forces that determine the demand for and the supply of military personnel. This understanding, combined with constant tracking and analysis of economic, political, military, and social trends, enables decision makers to accomplish two essential tasks: to locate key factors that determine the demand curve for and supply curve of military personnel; and to develop a strategy, which manipulates these factors to achieve military capability by using scarce resources effectively and efficiently.

The strategy used or, as Muchinsky (1996) notes, the "process of change," is sometimes more important than the actual outcome because it ensures credibility for the management and support of stakeholders in the future. The key to choosing the "right" strategy often lies in understanding the history and culture of an organization, a comprehensive analysis of the present situation, and an awareness of factors that could affect the desired outcome. Therefore, before answering the question of “where to go,” responsible leaders must consider the questions “where are we?” and “where are we from?” In evaluating the decision to implement an AVF, Fleckenstein (1988) emphasizes the importance of considering a nation’s historical experience with the military. The discussion in Chapter III about different approaches to conceptualizing a military organization shows that the military self-image and the relationship between the armed forces and society can be as important as the military outcome itself. The “institutional/occupational” model, first developed by Moskos can, therefore, be seen as an attempt to conceptualize the effects of military policies both on military effectiveness and on the relationship between the armed forces and society.

Many discussions about the effectiveness and efficiency of different military systems center around cost comparisons between voluntary and conscript armed forces. Although economic considerations are not the only inputs to the ultimate policy decision, as Moskos (1988) suggests, it is clear that the resources and cost implications of various policy options play a central role. It can be expected that policy makers will be strongly influenced by the anticipated budget costs of military manpower when considering a change to an AVF. For this reason, this paper suggests considering the following variables: First, the “Military Participation Ratio”; second, the “Conscript-Volunteer Pay Ratio”; third, the “Unemployment rate”; and finally, the “Gross National Product per Capita.” Figure 7.1 shows the estimated effects of these variables on the decision to implement an AVF, holding everything else constant.

Chapter V shows that one consequence of the draft is the so-called conscription tax. The discussion emphasizes the need to consider the conscription tax for the following reasons. First, the conscription tax is an important element of public policy because it reduces the amount of direct taxes that the general public must pay. And, second, it induces the equity issue and questions about who should carry the burden of conscription. For those forced into the military, the burden of military service has many components—the interruption in their lives, the risk of life and limb, and the financial penalties from having to forgo productive civilian employment, to name but a few. The imposition of this burden does not, in itself, constitute inequity. Rather, the inequity of selective service derives from the *selective* way, as Cooper (1977) puts is, that the burden is shared: some have to serve, while others do not. This thesis, therefore, assumes that the "Military Participation Conscript Ratio" is significant and has a negative effect on the decision to abolish compulsory military service.

Chapter VI introduces the so-called "Military Design Factors." As Nadler and Tushman (1991) state, organizations are made up of components or parts that interact with each other.[53] These components exist in states of relative balance, consistency, or "fit" with each other. The different parts of the organization can fit well together and thus function effectively; or, they can fit poorly, leading to problems. Therefore, the reason to consider this component is the fact that it provides information about the structure and functionality of the military organization and, here especially, the question about the efficient use of resources.

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[53] See David A. Nadler and Michael Tushman, "A Congruence Model for Diagnosing Organizational Behavior," in David A. Kolb, Irwin M. Rubin and Joyce S. Osland, *The Organizational Behavior Reader.*

The assumption is that all four factors in the conceptual model--social, military, political, and economic--are highly correlated and have a significant influence on the outcome of the military organization (i.e., military capability and readiness). To omit one of these variables in evaluating the decision to implement an AVF would lead to bias and pitfalls in the policy analysis process. However, as Figure 7.1 shows, the main focus in this paper is on economic considerations and the question about the fit between different key components in the military organization, or the so-called "Military Design Factors." Because political and military factors did not receive particular attention, the paper recognizes limitations in its ability to predict the estimated effects of the variables under observation.

Therefore, this thesis recommends a follow-up study that locates and analyzes the effects of political and military factors. The combination of both studies would provide a basis for the design of a quantitative model that could be used to assess whether a specific country with compulsory military service possesses the conditions for successful conversion to an all-volunteer system.

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